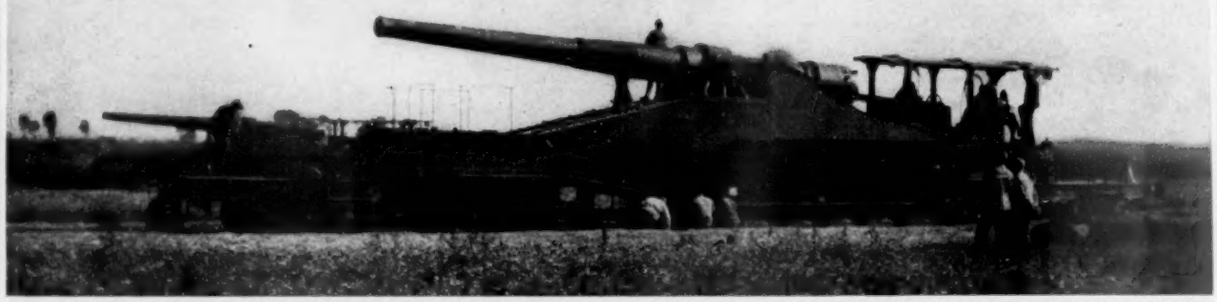
Railway Age

Vol. 64. May 10, 1918 No. 19



Two of the Big Railroad Guns

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EDWARD A. SIMMONS, *Pres.* L. B. SHERMAN, *Vice-Pres.* HENRY LEE, *Vice-Pres. & Treas.* M. H. WIUM, *Secretary.*

CHICAGO: Transportation Building. CLEVELAND: Citizens Building. WASHINGTON: Home Life Building.

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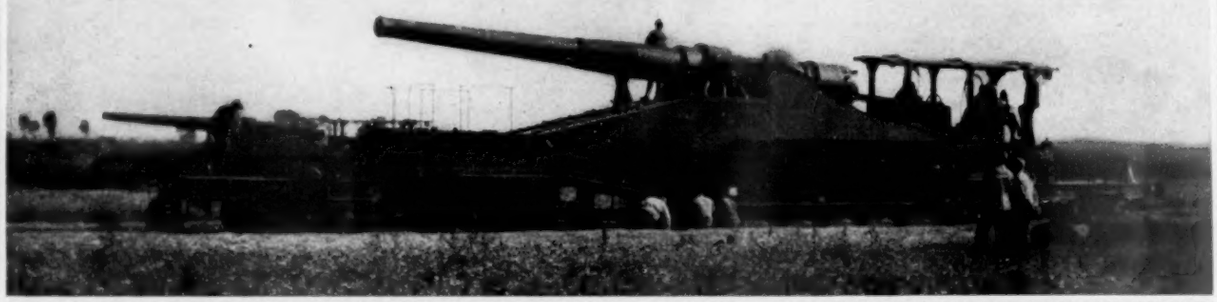

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EDITORIAL

Railway Age

With the placing of orders for the 1,025 standard locomotives for the Railroad Administration there has been launched one of the greatest experiments ever tried in the history of American railroading. With the order came the statement, "This is the first time that any real forward step has been taken looking to the wide standardization of locomotive engines." It is evident that whoever prepared this statement intended to convey the impression that from now on, while the railroads are under the control of the government, none but standard locomotives are to be ordered. This is contrary to the statement issued by the Railroad Administration a short time ago that railways having peculiar conditions would be allowed to order suitable engines. It is evident there is still some misunderstanding on this extremely important subject. Doubtless the policy to be followed and the reasons for it will be clearly defined later on. It would seem at present, however, that the purpose is to restrict the railways just as far as possible to the purchase of the standardized locomotives, regardless of important differences of operative conditions. In other words, those in favor of an extreme policy of standardization seem to have prevailed. This is highly regrettable. Undoubtedly there should be a reduction in the number of classes of locomotives in use on our railways, but the disadvantages of an unnecessary multiplication of classes have been far less than would be the disadvantages of too stringent limitation of the number of classes. The number of different conditions under which locomotives must be operated is very great; and the most economical and efficient operation of the railways as a whole never could have been and never can be obtained without the use of enough classes of locomotives to meet all conditions. Fortunately there is some reason for hoping that a continuance of full and frank discussion of the subject will ultimately cause those in authority to recognize the fact that it is easier and more practical to adapt the locomotive to the operating conditions than to adjust the operating conditions to the locomotive.

An Extreme Program of Standardization

Are those who are responsible for placing the orders for the government's standard locomotives more interested in firmly establishing the standard locomotives than they are in obtaining the new locomotives as fast as possible? The manner in which the orders for the 1,025 standard locomotives were placed last week would seem to indicate that they are. The distribution of the orders was first arranged so that both the American Locomotive Company and the Baldwin Locomotive Works would have as large a number of one class to build as possible, with the exception of the 400 light Mikados, which were split equally—200 locomotives to each company. The manner in which the order was finally placed divided the number required of each class between both builders. The table shows an outline of both plans of distribution. The final plan gives the American orders for units of 3, 5, 10, 10, 15, 20, 25, 30, 70, 75, 75 and 217 locomotives, and Baldwin orders for units of 2, 10, 10, 15, 15, 15, 20, 20, 20, 30, 75 and 183 locomotives, where the first arrangement permitted the orders to be placed in units of 20, 35, 50, 100, 150 and 200 for the American, and 5, 20, 30, 35, 150 and 200 for Baldwin. Now each builder will be obliged to make patterns, dies, jigs, etc., for each of the twelve standard types, whereas the first arrangement required the American to build six designs and Baldwin seven. The former arrangement would have made it possible to turn out the present order more quickly while the present arrangement would make it possible to turn out a future order of the standard engines more quickly; and this probably explains the arrangement adopted. Meantime, fortunately the builders still have yet to build almost two thousand locomotives, orders for which were placed by individual railways last year. Since January first the eastern lines have received 704 new locomotives, including 62 which were built for the western lines, 23 which were built for the southern lines, 122 which were built to be sent to France, and 125 which were built for Russia. The southern lines have received 98, including 13 which were built to be sent to France and 60 built for Russia. The western lines have received 53. This makes a total received this year of 855. Additional engines to be received on orders that were placed before January first includes 1,013 for eastern lines, 834 for western lines and 146 for southern lines, a total of 1,993. This number, together with the 1,025 standard locomotives which have just been ordered, makes a total of 3,018 locomotives now on order for the railways of the United States.

Standardization and Speed in Production

Types	First Distribution		Final Distribution	
	American	Baldwin	American	Baldwin
Mikado (light)	200	200	217	183
Mikado (heavy)	100	...	70	30
Santa Fe (light)	150	...	75	75
Santa Fe (heavy)	35	...	25	10
Mallet (2-6-6-2)	...	30	15	15
Mallet (2-8-8-2)	20	...	5	15
Pacific (light)	...	30	10	20
Pacific (heavy)	...	20	10	10
Mountain (light)	...	35	20	15
Mountain (heavy)	...	5	3	2
Switcher (0-6-0)	50	...	30	20
Switcher (0-8-0)	...	150	75	75

Can Local Lines Take Over Work of Off-Line Agencies?

THE RECENT PROTEST of the Illinois Manufacturers' Association against the discontinuance of off-line traffic offices is representative of the attitude of a large proportion of American shippers and focuses attention upon one of the most radical changes so far made by the Railroad Administration. It is the contention of the shippers that while solicitation is now superfluous because of the absence of competition, the informative services performed by the off-line representative are still necessary. These duties included the quoting of domestic and foreign rates, the filing of passing reports on the carload shipments of patrons, thereby facilitating the tracing of delayed cars, supervision over package car service and the prompt tracing of delayed mer-

chandise, the adjustment of claims, the handling of foreign freight matters, including bookings and clearances, the reconsignment of carload freight and the diversion of delayed or embargoed freight to connections. While shippers admit that the performance of this work does not require the maintenance of separate off-line offices, they contend that local lines will be unable to discharge this function satisfactorily and that the proper solution of the problem is the establishment of a joint off-line office in each important city. Supporters of the action of the Railroad Administration maintain that local lines will be able to perform this informative work satisfactorily if shippers assume a reasonable and co-operative attitude toward them.

In the past the keen competition between roads has put a premium on service to the shipper with the result that traffic representatives have exerted themselves to get into the good graces of their patrons. This condition, supporters of the Railroad Administration say, led to the rendering of many services which were unnecessary and unreasonable, but which the shipper has come to consider properly due him. Having grown accustomed to being sued for his favor by railway solicitors, it is naturally difficult for the shipper to adjust himself to a new situation in which traffic is not sought after. It is unfortunate that the discontinuance of off-line agencies will prove a hardship on many traffic representatives who have spent years in solicitation work and will have some difficulty in adapting themselves to different positions. Every effort, however, is being made to provide new places for these men in other kinds of railway work. It is also to be regretted that the off-line agencies were abolished before adequate means were provided for furnishing to shippers, not the same service as before, but the service to which they are entitled. However, since the powers that be believe that the offices of local lines can take over the work of off-line agencies, this new plan should be given a fair trial before passing final judgment upon it.

The Problem of the Contractor

WHILE MOST OF THE MORE IMPORTANT construction contracts which have been let by the roads during the last year have been on the basis of cost plus a percentage, or cost plus a fixed sum, a considerable amount of work under contracts awarded on a unit price basis, before our entrance into the war, is still uncompleted. The railroad contractor who is working under such an agreement at the present time, is in a dilemma. Almost every factor entering into the cost of his work has risen; labor rates are much higher than 15 or 18 months ago, and even then it is practically impossible to maintain sufficient forces to enable the work to be pushed to the best advantage and maximum economy; materials and supplies have risen in price, while delays in deliveries result in further disorganization and increased cost. Therefore unless the roads come to the relief of these contractors, they are confronted with the option of completing the work at a large loss, or of abandoning it and forfeiting their bonds.

The conditions giving rise to this situation are beyond the control of the contractor or the road. In many instances materials arranged for in adequate time have been taken by the government and in other cases working conditions have been so disarranged directly or indirectly by government work that forces have become demoralized. In general the engineers of the roads have realized the seriousness of the situation and have taken steps to reimburse the contractor for the actual and necessary increases in costs. This action has not been universal, however, and in instances where it has not been done hardship has resulted.

This situation is not confined to the roads, but is prevalent in all construction work. One notable illustration is the new subway system in New York, where the contractors are working under such adverse conditions that an attempt is now being made to secure relief for them through special legislation authorizing the Public Service Commission, which made the original contracts, to make proper and equitable adjustments.

The object of any contract is to provide for the building of a facility to the satisfaction of the road and at the minimum cost, consistent with the earning of a fair and reasonable profit by the contractor. Any return less than that, particularly if brought about by conditions which were unavoidable and which neither party anticipated when the contract was signed, is certain to result in mutual dissatisfaction. The most unsatisfactory and expensive contractor on a road is one who is losing money and who is therefore looking for every opportunity to reduce the cost, frequently at the expense of the finished work. Under present conditions the roads should, in all fairness to contractors working on pre-war contracts, consider carefully the terms of the contracts to ascertain if justice is being done and if not to take such steps as will insure fair treatment for them.

The Co-Ordination of Terminals

THE DIVERSION OF BALTIMORE & OHIO passenger trains from the terminal of the Central Railroad of New Jersey on the west shore of the Hudson River at Jersey City into the Pennsylvania terminal on Manhattan Island a week ago last Sunday is the most radical step which the Railroad Administration has yet taken to unify the operation of terminals. The unification of terminals has been a much-favored topic among the city planning enthusiasts in a number of cities, notably Chicago, for many years. On the surface the idea has much to commend it. However, the deeper one studies into the practical phases of the subject the more does he realize the difficulties which exist.

When the government assumed control of the roads the popular idea was that the administration would be able to save millions of dollars through the common operation of terminals and that the delay and congestion would disappear as if by magic. It is to the credit of the Railroad Administration that it has not allowed itself to be stampeded by this clamor at a time when errors would add seriously to the congestion and that it has proceeded to study the subject carefully, availing itself of the services of railway men conversant with local conditions in the various cities. While this method is not as spectacular as some enthusiasts desire it is having a more important beneficial influence on operating methods.

Railway men will agree that many improvements in terminal operation can be effected through unified control, for this control of the roads removes many of the barriers to the joint operation of terminals inherent in individual management. At the same time many of the existing practices are the result of legitimate demands for service which still exists and which must be met. If the roads were all to be wiped out and rebuilt new today there is no question but that many of the terminals would be located and built differently. However, to consider the operation of terminals on this basis at this late day is an idle dream, for the roads are now located in certain places and they must be operated as they now exist.

While in some instances it may be practicable to adopt as radical methods as the diversion of the Baltimore & Ohio trains into the Pennsylvania station at New York, in most instances the most immediate results, and those most effective in winning the war, can be secured by improving conditions

at one point or another, which while perhaps relatively minor in themselves, become large in the aggregate.

It is to be expected that the officers on the individual roads are best able to handle terminal operations on their own lines. It is when two or more roads come in contact with each other in joint operations that the government has the greatest opportunity to effect economies by coordinating efforts. As an instance, the interchange of cars has commonly been made at the point and under the conditions most convenient to the receiving line, frequently regardless of the expense to the delivering road. Unified control now enables this interchange to be made at the place and in the manner which will result in the greatest common good to both roads. As another example, the western regional director has already taken steps to avoid duplicate switching at industries served by two or more roads. While measures such as these are not necessarily original, for they have been worked out locally by mutual agreement between roads, in many instances they are now being extended to more general use.

It is possible that ultimately roads with modern terminal facilities of sufficient capacity may be asked to share them with other roads less favorably situated during the period of government control in order that the public may best be served with the minimum investment. In some instances this will undoubtedly make necessary the construction of connections between existing roads and the building of other facilities for joint operation. However, the Railroad Administration is proceeding for the present along the most practical lines by undertaking first those improvements which will yield most direct and the quickest results.

Is a Labor Monopoly Advisable?

GOVERNMENT CONTROL is already resulting in a number of marked changes in the established practices of the maintenance of way department, the outcome of which is being watched with much concern. Orders have been issued that the roads shall not purchase rails, but that the Central Purchasing Board will take over this work. As a result no orders for rails have been placed since January 1, mills are rolling at less than 30 per cent capacity on unfilled orders and many roads have little or no rails on hand at the season when their renewal is normally well advanced. Likewise, the authority of the roads to purchase ties has been restricted and most of this work turned over to the government so that a shortage for replacement purposes exists on many lines.

The most recent and probably the most radical departure is the fixing of maximum rates for track labor and the consolidation of railway and private agencies with the government bureaus. In an order issued by the western regional director the maximum rate of 25 cents an hour has been fixed for the central and southwestern territories, and 27½ cents an hour in the northwestern territory and in large terminals. The only exception is that lines now paying higher wages in certain localities may continue those rates, but shall not extend them.

No one will deny that abuses have existed in the labor field in times of business activity and competition for men. Roads have bid against one another and labor agents have encouraged gangs to transfer from one line to another on slight pretext, with the result that the cost of the work has been increased while the total output of labor has been reduced rather than enlarged. Nothing seems to demoralize the labor market more rapidly than this practice, and this promiscuous competition for men should be eliminated.

Many of the labor agencies have also been the source of abuses and have exploited the men to their own benefit, while playing one road against another. The consolidation of these agencies under government control should eliminate abuses of this character. The establishment of a fixed rate over a wide area prevents the roads from meeting competition with outside industries at local points, and the manufacturer or contractor will now be able to secure all the men he desires from the railway forces, knowing that the roads are unable to meet his rates. As a result while the rate established may be satisfactory in small, isolated communities, it will not be sufficient to enable the roads to retain adequate forces in the busy industrial and agricultural communities where labor is at a premium. This condition will result in many men being attracted from the railways into other work.

The consolidation of private labor agencies under the supervision of the government, also possesses disadvantages. In spite of the commonly recognized abuses of private labor agencies, they have built up systems and acquaintances by means of which they have been able to secure men for the roads in past years when the government bureaus have been unable to do this. In general the roads have secured little assistance from state or national labor bureaus in the past. With the private labor agencies closed, the advantage of the federal agencies will, of course, be increased, but it is doubtful if bureaus which are engaged in the recruiting of labor for all classes of government activities will not allow the roads to suffer.

Furthermore, with the incentive of private gain removed, the labor agents working under government control will very probably not show the same zeal in securing men for railway service that they have in the past.

There is now an acute shortage of labor and this situation will become more serious as the season advances. There is, therefore, a wide difference of opinion among railroad men regarding the advisability of disarranging existing practices so radically, when the main object is to secure an adequate supply of labor and when the wage rate, although important, is secondary to the importance of completing the work. There is a fear that the disadvantages resulting from these radical steps may be more serious than the abuses which they are designed to correct. Time and a thorough test of the plan alone will determine this.

New York Central

THE NEW YORK CENTRAL is in a very different position today from what it was three years ago. The merger in the latter part of 1914 of the Lake Shore & Michigan Southern and the New York Central & Hudson River was a financial readjustment which gave an opportunity for greatly strengthening the general credit situation of the New York Central Lines by making available directly to the parent company the "plowed in" earlier surpluses of the Lake Shore. No matter how skillful, however, financial readjustments may be, the rock bottom foundation on which they have got to be predicated is the earning power of the railway property itself. Even after the merger with the Lake Shore, the New York Central's financial structure was not so impregnable that an extravagant or mistaken policy of operation might not have seriously weakened it. As a matter of fact, the operating results obtained in the last three years have immensely strengthened this structure.

The New York Central came through even the unprecedentedly trying year of 1917 with a fine showing. In the three years since the merger with the Lake Shore, the New York Central has increased its average train load by over 30 per cent and during this time it has held down train-mile ex-

penses to an increase rather less proportionally than the increase in wages and cost of materials.

In 1917 the New York Central with its 5,685 miles of line, of which the main line is a four-track road from New York to Chicago, earned $216,268,000, an increase over 1916 of $14,682,000. Expenses increased by $23,859,000, but even so, the operating ratio was 71 per cent in 1917 as against something over 64 per cent in 1916. Taxes increased by $2,758,000, "other income" decreased by over $7,000,000 due to a very much smaller profit on separately operated properties and lower dividend declarations of controlled companies, so that net corporate income available for dividends amounted to $25,599,000 in 1917 as against $45,659,000 in 1916. But even in 1917 the five per cent dividend took less than half of the amount available, leaving a surplus of over $13,000,000. In 1916 the surplus was $30,693,000. The piling up of surpluses in the years 1915, 1916 and 1917 which could be carried to profit and loss are of an importance that it is hard to overestimate. One need only try to figure what the 1917 balance sheet would have looked like had the company not been able to add more than $46,000,000 to its surplus during these three years. The addition of this $46,000,000 to liabilities is a bookkeeping transaction, but it is actually contained in assets. Try to picture the assets' side without this $46,000,000. Below is a condensed comparative balance sheet of 1915 and 1917.

ASSETS.

	January 1, 1915	December 31, 1917
Road and equipment	$620,480,100	$694,619,200
Improvements on leased property	82,942,900	92,132,200
Miscellaneous physical property	6,011,900	8,680,600
Securities of affiliated companies	224,678,800	194,534,900
Securities of other companies	34,312,800	44,429,300
Total property	$968,426,500	$1,034,396,200
Current assets	69,161,200	84,827,800
Deferred and unadjusted assets	10,781,000	39,577,900
	$1,048,368,700	$1,158,801,900

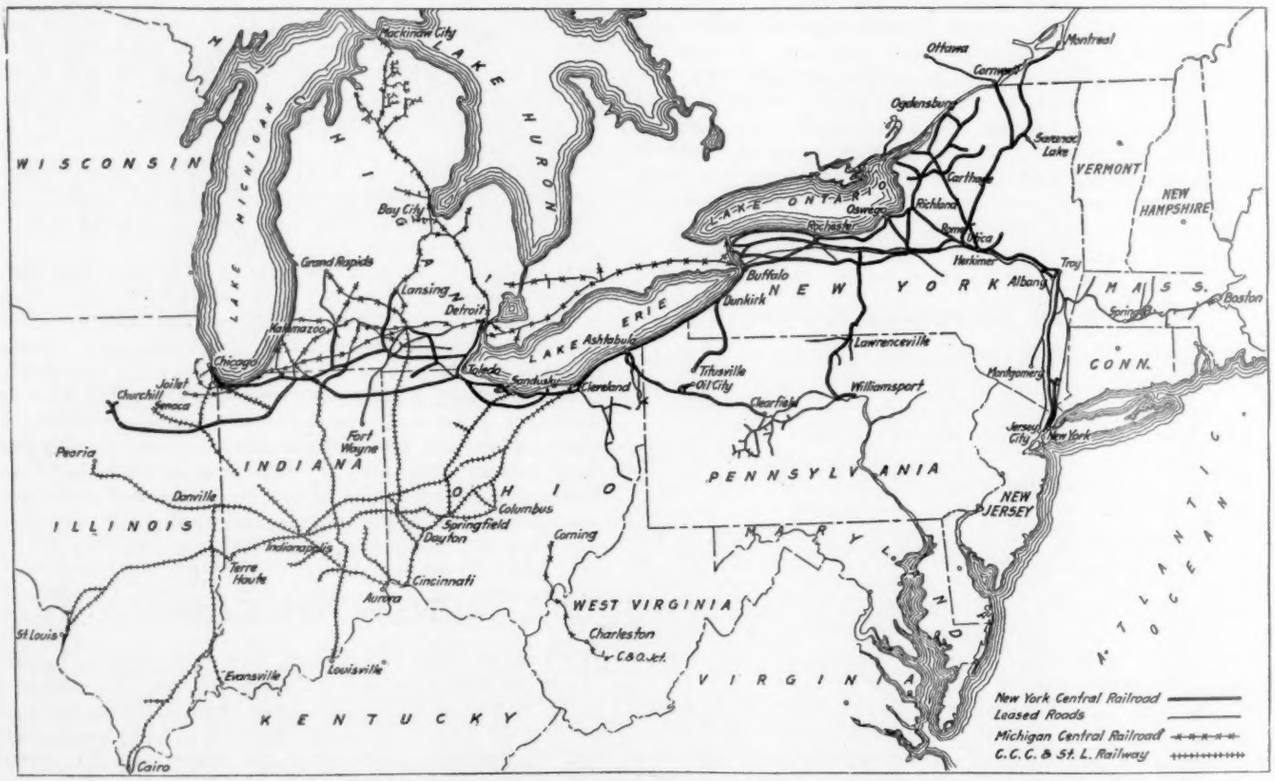
LIABILITIES.

	January 1, 1915	December 31, 1917
Capital stock	$249,590,500	$249,849,400
Debt	703,413,900	729,185,500
Total capitalization	$953,004,400	$979,034,900
Current liabilities	$32,805,500	$46,552,700
Deferred and unadjusted liabilities	33,152,900	57,410,600
Surplus	29,405,900	75,803,700
	$1,048,368,700	$1,158,801,900

The increases in revenue in 1917 as compared with 1916 were the result of a considerably larger freight movement, a much larger passenger business and a somewhat higher average ton-mile rate and passenger-mile rate. Freight revenue amounted to $135,979,000, an increase of $8,113,000. The total tonnage of freight carried was 110,238,000 tons, an increase of 3,830,000 tons, and the average haul of revenue freight was 204 miles in 1917 and 201 miles in 1916. The average revenue per ton of freight was 6.03 mills in 1917 and 5.98 mills in 1916.

Passenger revenue amounted to $49,987,000, an increase over the previous year of $4,466,000 and the total number of passengers carried was 57,288,000, an increase over 1916 of 1,759,000. Nearly all of this increase, however, in number of passengers carried was in commutation passengers. Nevertheless the average passenger journey was 44 miles in 1917 and 42 miles in 1916. In other words, the average of the interline journeys and local passenger journeys other than commuters' journeys must have increased very considerably so as to offset the larger proportion of commuters' journeys. The average revenue per passenger per mile was 1.96 cents, as against 1.934 cents in 1916.

Notwithstanding an increase of 1,137,000,000 ton-miles handled by the New York Central, the freight train mileage decreased by 1,212,000, totaling in 1917 26,620,000. Reductions in passenger service enabled a saving of 727,000 passenger train-miles, the total in 1917 being 27,735,000.



The New York Central, the Cleveland, Cincinnati, Chicago & St. Louis, and the Michigan Central

The average number of passengers per train-mile was 92 in 1917 as against 82 in 1916.

The reduction in freight train mileage is really a remarkable achievement. The average train load of all freight in 1917 was 927 tons, an increase of more than 80 tons over 1916. It is true that there was a decrease in empty car mileage, the average number of empty cars per train being 16.59 in 1917 as against 17.37 in 1916; there was also a decrease in the movement of loaded cars per train, the average in 1917 being 34.94 and in 1916 35.83. There was a notable increase in car loading; the average loading per loaded car was 26.54 tons in 1917, as against 23.63 tons in 1916, an increase of over 12 per cent. There was no great increase in the number of heavy locomotives in service during the year. Five locomotives were added to freight service and 15 retired, and none were added to passenger service. The increased car loading and reduction in empty car mileage materially reduced, of course, the tare weight which had to be hauled for each ton of revenue freight. But making allowance for this, it would still appear that in a year in which pressure of business, labor unrest and in some months very unfavorable weather conditions, had all tended to demoralize railroad operation, the operating management of the New York Central succeeded in showing a marked improvement even over the banner year 1916.

Some of the increases in transportation expenses are fairly startling when we consider how good the showing is measured in business moved and train-miles consumed in moving it. The cost of fuel per train locomotive, excluding yard and switching locomotives, was $14,482,000, or $5,816,000 more than in 1916. This increase in train locomotive fuel alone is equal to more than two per cent on the stock of the New York Central. Fuel for yard locomotives cost $3,938,000, an increase of $1,671,000. Train enginemen's wages amounted to $7,363,000, an increase of $1,064,000, and trainmen's wages amounted to $8,617,000, an increase of $1,198,000. There was a heavy increase in loss and damage to freight, the total amount paid on this account in 1917 being $2,920,000, or $1,087,000 more than was paid in 1916.

There was spent on maintenance of way and structures $20,704,000 in 1917, an increase of $1,739,000 over 1916. Apparently this increase does not by any means represent the difference in cost of the same standard of maintenance in 1917 and 1916. For instance, whereas there was a charge of $615,000 for rails (a comparatively small charge) made in 1916, there was a credit taken of almost the same amount for rails in 1917, making a total difference in this account as between the two years of $1,240,000. It may be presumed that inability to get deliveries of rails was a factor in cessation of the rail relaying program. Maintenance of equipment cost $38,447,000, an increase of $2,451,000. Much larger expenditures for repairs to locomotives, freight cars and passenger cars was offset in part by large decreases in the amount charged for retirements. In other words, in 1916, with the very large net earnings available, the New York Central found it expedient to retire an extraordinarily large amount of equipment and to charge the difference between accrued depreciation plus scrap value and original cost to retirements. In 1917 charges for retirements were comparatively small.

The following table shows the ratio of each class of operating expenses to total operating revenues:

	1917	1916
Maintenance of way and structures	9.57	9.41
Maintenance of equipment	17.78	17.85
Traffic expenses	1.35	1.44
Transportation expenses	38.67	32.22
Miscellaneous operations	1.37	1.29
General expenses	2.28	2.15
Total	71.02	64.36

In 1916 the New York Central had planned to issue and sell at par to stockholders $25,000,000 stock, but market conditions were such that the offer was withdrawn. The market price of New York Central dropped below par. The company, however, issued $20,000,000 4½ per cent refunding and improvement mortgage bonds, which were deposited as collateral for $15,000,000 two-year five per cent notes, due September 15, 1919, which were sold. The company also sold $8,205,000 4½ per cent equipment certificates, but finding itself unable to sell more of these certificates to the public, itself took $1,305,000 additional. A total of $34,271,000 was charged to additional investment in property, but this included the purchase of the Dolgeville & Salisbury Railway Company and the Cornwall Bridge Company, both of which were already controlled and operated by the New York Central. The actual amount spent for enlargements of yards and terminal facilities was $5,867,000, of roadway and bridge improvements $2,917,000 and elimination of grade crossings $1,120,000. In addition there was an increase of $15,973,000 in the investment in equipment and $3,737,000 in "improvements on leased railway property."

The following table shows the principal figures for operation in 1917 as compared with 1916:

	1917	1916
Average mileage operated	5,685	5,689
Freight revenue	$135,979,337	$127,866,102
Passenger revenue	49,987,343	45,521,329
Total railway operating revenues	216,267,517	201,585,049
Maintenance of way and structures	20,704,306	18,965,061
Maintenance of equipment	38,446,594	35,995,816
Traffic	2,929,824	2,897,683
Transportation	83,627,440	64,950,528
General expenses	4,923,016	4,332,810
Total operating expenses	153,597,905	129,738,369
Taxes	11,239,638	8,481,549
Operating income	51,410,322	63,344,017
Gross income	66,873,026	85,967,446
Net income	25,599,220	45,659,217
Dividends	12,479,603	12,466,611
Appropriated for equipment depreciation	.....	2,500,000
Sinking fund	115,563	.....
Surplus	13,004,054	30,692,606

Michigan Central and Cleveland, Cincinnati, Chicago & St. Louis

The Michigan Central and the Cleveland, Cincinnati, Chicago & St. Louis are the two principal controlled lines of the New York Central. In many ways they are strikingly different one from another. The Michigan Central is nearly all main line. It runs from Buffalo through Ontario along the northern shore of Lake Erie to Detroit, Mich., and to Toledo, Ohio, with a main line east and west across the southern boundry of Michigan and around the lower end of Lake Michigan to Chicago and with a north and south line from Detroit through Bay City to the northern point of the Michigan peninsula—Mackinaw City. The mileage operated totals 1,862 miles. In contrast to this the Cleveland, Cincinnati, Chicago & St. Louis, or Big Four, as it is usually called, operates a network of lines radiating over western Ohio, Indiana and eastern Illinois, with a western through line to St. Louis, Mo. It connects the lake cities of Cleveland, Sandusky and Toledo with Columbus, Springfield, Dayton and Cincinnati, Ohio, and with Indianapolis and Terre Haute, Indiana. In all the company operates 2,387 miles of line.

In 1916 both companies enjoyed quite extraordinary prosperity and the following figures for 1916 show the principal characteristics of the two roads under those conditions: The Michigan Central operating revenue was $24,933 per mile, the Big Four, $19,556 per mile. The freight density of the Michigan Central was 2,286,000 ton miles, of the Big Four 2,470,000 ton miles. The average ton mile rate on the Michigan Central was 7.14 mills and on the Big Four 5.56 mills. The average length of haul of freight on the Michigan Central was 167 miles and on the Big Four 178 miles. The passenger density on the Michigan Central

was 289,000 passenger miles, on the Big Four, 211,000 passenger miles. The revenue per passenger per mile on the Michigan Central was 2.190 cents and on the Big Four 2.007 cents. Of the 24,948,000 tons of freight carried by the Michigan Central 4,778,000 tons was furnished by bituminous coal, 2,154,000 tons by stone and sand and 1,230,000 tons by anthracite coal. Of the total 32,903,000 tons of freight carried by the Big Four, 14,509,000 tons was furnished by bituminous coal and 2,025,000 tons by stone and sand, and a negligible amount by anthracite coal. About the same tonnage of grain was handled by the two roads and the Michigan Central handled a somewhat greater tonnage of manufactured products. The average train load of all freight in 1916 on the Michigan Central was 606 tons and on the Big Four 654 tons. In 1916 the Michigan Central had $6,837,000 available for dividends and the Big Four $8,332,000.

It is rather interesting to see how these two roads, both controlled by the same interests but with such widely different operating conditions, were affected by the extraordinary traffic and operating changes which took place in 1917.

The Michigan Central's net income available for dividends was about cut in two, amounting to only $3,438,000, as against $6,837,000 in the previous year, despite an increase of $6,461,000 in operating revenues. The Big Four's net available for dividends held up rather better and amounted to $5,258,000 in 1917 as against $8,332,000 in 1916. Moreover, the gain in operating revenues was only $5,973,000 for the Big Four. By a coincidence the Michigan Central with its 1,800 miles of line earned quite nearly the same amount as the Big Four with its nearly 2,400 miles of line. The exact figures are shown in the table at the end of these remarks.

The Michigan Central's gain in freight revenue was about half a million dollars more than the Big Four's gain. Nearly the entire increase of tonnage on the Big Four was bituminous coal; the other products showing an increase were offset by a numerous list of products showing decreased tonnage. On the other hand the Michigan Central's bituminous coal tonnage increased in actual amount considerably less than that of the Big Four, but the proportion of increase to total tonnage carried was greater and there are numerous other classes of commodities showing fairly large increases in tonnage with comparatively few offsetting losses in tonnage. Furthermore, the average ton mile rate on the Michigan Central increased by 0.12 mills, amounting in 1917 to 7.26 mills, while the Big Four's ton mile rate increased by 0.10 mills averaging 5.66 mills in 1917.

The Michigan Central did a much smaller business in handling local passengers, but showed a gain in this class of business of 159,000, against a gain by the Big Four of 155,000. The Michigan Central, handling a larger number of interline passengers than Big Four, showed a gain of only 110,000 in this class of business as against a gain for the Big Four of 237,000.

Total operating expenses of the Michigan Central amounted in 1917 to $38,289,000, an increase over 1916 of $7,643,000. The Big Four operating expenses amounted to $38,059,000 and the increase over 1916 was $6,837,000. The increase in the out-of-town pocket-cost of handling freight and passenger business (transportation expenses) was a little greater on the Michigan Central than on the Big Four. These expenses in 1917 on the Michigan Central amounted to $22,211,000, an increase over 1916 of $5,805,000. Corresponding expenses on the Big Four amounted to $21,460,000, an increase of $5,644,000. The greatest difference on the two roads was the increase in cost of fuel. In 1917 the Michigan Central spent $4,529,000 for fuel for train locomotives; this was an increase of $1,904,000 —nearly 73 per cent. The Big Four in 1917 spent $3,844,000 for fuel for train locomotives, an increase of $1,558,000 —68 per cent. The increased cost of fuel for yard locomotives was even greater proportionately on the Michigan Central as compared with the Big Four. On the other hand the Michigan Central showed a comparatively small increase in wages of train enginemen, the amount spent in 1917 being $1,731,000, or only $224,000 more than in 1916, while the Big Four spent $2,025,000 on this account in 1917, an increase of $369,000.

Total train mileage of revenue trains was 14,249,000 on the Michigan Central in 1917, an increase over the previous year of 108,000 train miles. On the Big Four total revenue train mileage was 17,984,000, an increase of 329,000 train miles.

The average total train load of the Michigan Central was 683 tons, an increase of 77 tons over the average in 1916. The Big Four's train load in 1917 was 745 tons, an increase over 1916 of 67 tons. The Big Four, however, labored under the disadvantage of having a more unbalanced traffic in 1917 than in 1916. The average number of empty cars per train was 12.6 for 1917 as against 11.6 in 1916, while the Michigan Central had the advantage of a better balanced traffic in 1917 than in 1916, the average number of empty cars per train being 10 last year and 12 the year before.

Expenditures for maintenance probably reflected to a less extent than ever heretofore, taking the country as a whole, the policy of retrenchment or the reverse of the management, because in 1917 the exigencies of the situation were such as to in considerable part take the matter of how much work should be done out of the hands of the management. In general the pressure of business was so great that all the maintenance work which could be done with the labor and materials available was authorized. The Michigan Central spent $5,390,000 on maintenance of way in 1917, an increase of about $223,000 over the previous year and spent $8,026,000 for maintenance of equipment, an increase of $1,351,000. The Big Four spent $4,378,000 for maintenance of way, a decrease of $169,000 and spent $9,808,000 for maintenance of equipment, an increase of $1,122,000. Like the parent company, the New York Central, the Michigan Central and the Big Four both had a credit in 1917 for rails. In other words, there had been charged prior to 1917 more for rails than was actually represented by rails used and nothing was charged in 1917, but the previous excess charges were taken up that year. Like the parent company, also, less was charged out in 1917 for retirements of equipment both by the Michigan Central and the Big Four, with the exception, however, of a large charge for retirements of freight train cars made by the Michigan Central.

Neither the Michigan Central nor the Big Four issued any bonds during the year and the expenditures for additions and betterments amounted to $1,719,000 in the case of the Michigan Central and $2,222,000 in the case of the Big Four; the net addition to equipment amounted to $6,891,000 for the Michigan Central and $4,092,000 for the Big Four. At the end of 1917 the Michigan Central had $3,710,000 cash and $15,828,000 loans and bills payable. The Big Four had $2,966,000 cash and $3,763,000 loans and bills payable.

Just a word ought to be said in particular about the progress which the Big Four has made since the floods in 1913. During these four years it has been necessary to take up in operating expenses very large expenditures for repairs due to flood damage. It has been necessary to operate at times under unusually trying conditions and yet the Big Four has improved its position so materially that it can no longer be called one of the poor relations of the New York Central Lines.

The following table shows the principal figures for oper-

ation for the Michigan Central and the Cleveland, Cincinnati, Chicago & St. Louis in the two years 1917 and 1916:

	Michigan Central, 1917	Big Four, 1917	Michigan Central 1916	Big Four, 1916
Average mileage operated...	1,862	2,387	1,862	2,387
Freight revenue	$33,898,247	$36,077,390	$29,810,576	$32,536,544
Passenger revenue	12,859,299	12,009,347	11,146,342	10,026,742
Total operating revenues...	52,879,434	52,650,920	46,418,790	46,678,240
Maintenance of way.....	5,389,671	4,378,438	5,166,401	4,547,817
Maintenance of equipment	8,026,084	9,808,418	6,674,868	8,686,251
Traffic	865,239	1,042,726	819,782	1,028,789
Transportation expenses...	22,211,260	21,459,558	16,406,747	15,815,902
General expenses	973,012	1,054,131	878,085	929,532
Total operating expenses...	38,289,136	38,059,421	30,646,261	31,221,977
Taxes	1,972,237	2,738,986	1,686,010	1,686,720
Operating income	12,604,655	11,842,881	14,076,169	13,759,866
Gross income	13,474,457	13,411,830	15,012,999	15,061,346
Net income	3,438,216	5,257,807	6,837,372	8,331,702
Dividends	749,456	499,925	749,456	374,944
Surplus*	2,436,157	4,656,972	3,886,932	6,999,964

*In addition to dividends there were certain appropriations to sinking funds, additions and betterments, etc., made before the figures given for surpluses were arrived at.

Hocking Valley

THERE IS ONE ROAD in the east at least on which increased expenses did not more than consume larger revenues in 1917. It is a short one, the Hocking Valley, but a very important coal carrier. There may be, when all the annual reports come in, other roads showing an increased operating income in 1917 as compared with 1916, but it is pretty safe to say that they will be comparatively few in number. The Hocking Valley earned $10,696,000 in 1917, an increase over the previous year of more than 30 per cent. The company operates 350 miles from Toledo, Ohio, to the Ohio river at Gallipolis and Pomeroy. The road now has a connection from Columbus, Ohio, over the Norfolk & Western and the Chesapeake & Ohio Northern with the main line of the Chesapeake & Ohio at Portsmouth, Ohio. A majority of the Hocking Valley stock is owned by the Chesapeake & Ohio.

The Hocking Valley is a coal road with comparatively little other freight tonnage except manufactures. In 1917 the total tonnage of all freight carried was 14,867,000 tons and of this over 81 per cent was products of mines, bituminous coal alone furnishing more than 71 per cent of the total tonnage. The increase in tonnage carried as compared with 1916 was 1,807,000 tons and the increase in tonnage of bituminous coal alone was 1,373,000 tons. Besides the increase in tonnage there was a considerably higher average ton-mile rate received. The average in 1917 was 4.56 mills; certainly a figure that does not sound high, but this was an increase of 12 per cent over the average received in 1916.

With an increase of 30 per cent in revenues there was an increase of only 32 per cent in expenses, the total in 1917 being $7,409,000. Despite an increase of 41 per cent in taxes, operating income amounted to $2,455,000, an increase of about 22 per cent over the operating income of 1916. A decrease in miscellaneous income was more than offset in decreased rental payments and after paying 5½ per cent dividends, the company had a surplus of $1,329,000 in 1917.

The interesting feature of the Hocking Valley's annual report is the indications which are given as to how expenses were held down nearly in proportion to the increase in revenue. Maintenance of way expenses showed a very considerable increase, amounting in 1917 to $946,000, or an increase of 20 per cent over 1916. In some way or other the Hocking Valley apparently was able to obtain track labor sufficient in quantity to carry on quite extensive renewal work, especially of ties. Track laying and surfacing, which is a labor cost, amounted to $301,000 in 1917, an increase of $64,000. Ties, which is a material cost, amounted to $233,000, an increase of $35,000. The Hocking Valley, like so many other roads, apparently found rails impossible to obtain or obtainable only at prohibitive prices. There was only a nominal sum—less than $7,000—spent for rails in 1917.

Maintenance of equipment cost $3,366,000, an increase of $210,000, or nearly 10 per cent over 1916. The greater part of this increase is due to much heavier expenditures for repairs to locomotives in 1917, $515,000 being spent for repairs to locomotives, an increase of $143,000. This was an average in 1917 of $3,750 for repairs per locomotive. It is obvious from the above that it was not by large savings in maintenance that the Hocking Valley was able to hold down operating expenses.

While it is true that transportation expenses increased 57 per cent, this increase, coupled with the increases in maintenance expenditures, was not great enough to offset by more than half a million dollars, the increase in revenues.

Transportation expenses in 1917 amounted to $3,716,000, an increase over the previous year of $1,352,000. The increased cost of fuel was the most staggering of the increases in transportation expenses. For both train locomotives and yard locomotives, fuel costs increased by more than 100 per cent. These two increases alone accounted for nearly half a million dollars of the $1,352,000 increase in transportation expenses. Wages of trainmen, yard conductors and brakemen, enginemen and other employees make up the greater part of the rest of the total increase. With an increase of over 100 per cent in fuel costs, there was an increase of only eight per cent in freight train mileage and practically no increase in passenger train mileage.

On a road doing so largely a coal business, we would expect to find heavy average train loading, but it must also be remembered that on the Hocking Valley the coal cars have to be hauled south empty. The average number of loaded cars per train northbound in 1917 was 47.7 and of empty cars northbound 2.3, while the average number of loaded cars southbound was 13.2 and of empty cars 40.8 per cent. An average trainload, therefore, of 1,368 tons is a showing that the Hocking Valley may well be proud of. This trainloading was 131 tons, or 10.6 per cent greater than the average in 1916. Even more remarkable, however, are the results which the Hocking Valley has obtained in car loading. The average loading per loaded car, even in 1916, was 40 tons. This would be good car loading even if all of the traffic of the Hocking Valley were coal, because while its own coal cars average 47 tons capacity, it has to handle a certain number of foreign cars of lighter capacity, but it must be remembered that there is also a considerable tonnage of merchandise and of manufactures and the Hocking Valley's 3,085 box cars average only 30 tons capacity. In 1917 an average loading per loaded car of 44 tons was obtained, an increase of over nine per cent above the very high figure of 1916. This reflects a very strenuous campaign on the part of the management and operating officers to induce shippers to load cars to full capacity and an earnest effort on the part of shippers to cooperate with the Hocking Valley.

M. J. Caples, resident vice-president of the Hocking Valley and a member of the executive committee, was the vice-president in charge of the building of the Carolina, Clinchfield & Ohio. This line was designed and built to obtain a very low ratio of transportation expenses to operating revenues by means of very heavy trainloading. The very good showing which the Hocking Valley has made under the enormous pressure of coal business in 1917 would appear to be in good part due to the success of the efforts of the operating management to put in practice on that road certain principles of operation analogous to those for which

the Carolina, Clinchfield & Ohio was especially designed.

The following table shows the principal figures for operation in 1917 as compared with 1916.

	1917	1916
Average mileage operated	350	350
Freight revenue	$8,974,873	$6,681,262
Passenger revenue	961,700	917,935
Total operating revenue	10,696,434	8,200,420
Maintenance of way and structures	945,590	787,949
Maintenance of equipment	2,365,944	2,156,129
Traffic expenses	120,675	101,989
Transportation expenses	3,716,384	2,364,020
General expenses	261,469	187,802
Total operating expenses	7,409,123	5,597,889
Taxes	832,748	590,470
Operating income	2,447,845	2,011,438
Gross income	3,141,108	2,588,415
Net income	1,933,912	1,376,127
Dividends	604,973	439,980
Surplus	1,328,939	936,147

Chesapeake & Ohio

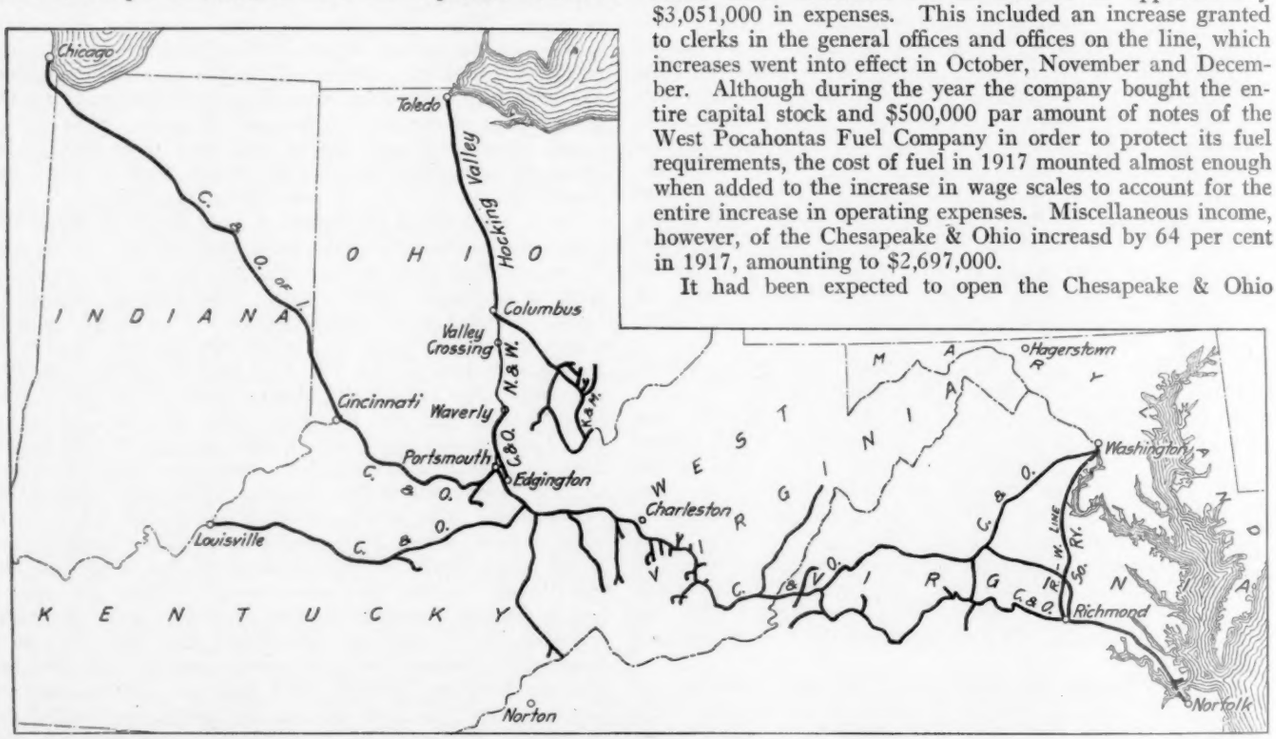
IN MARCH, 1916, the directors of the Chesapeake & Ohio decided to appropriate during the three years ending March 30, 1919, $7,500,000 from income toward additions and betterments, or for other capital expenditures, or for the reduction of liabilities. The company had found itself in a position where it was necessary to refund $33,000,000 of five per cent secured notes and to provide additional capital for additions and betterments. The proportion of funded debt to stock outstanding on the Chesapeake & Ohio was already higher than was consistent with what is generally accepted as sound railroad financing. The Chesapeake & Ohio stock, however, was selling very considerably below par and a bond issue appeared to be the only means of financing the maturing notes. An issue, therefore, of $40,180,000 five per cent 30-year convertible notes was sold. These notes are convertible up to April 1, 1920, into common stock at 75, between 1920 and 1923 into common stock at 80, between 1923 and 1926 at 90 and after that up to April 1, 1936, at par. The resolution to set aside from income $7,500,000 was dictated by the thoroughly sound principle that if bonds were converted into stock at less than par, the difference should be represented by an expenditure on the property or a retirement of liabilities made from income.

The company out of a net income from May 1, 1916, to December 31, 1917, has appropriated $7,500,000 for capital expenditures. In other words, the whole three years' program has already been taken care of. It is rather unusual to find a railroad able and willing to anticipate its obligations in this way under the conditions which prevailed in 1917. The Chesapeake & Ohio, however, although it did not do quite as well in respect to net income in 1917 as in 1916, earned $7,066,000 available for dividends, or the equivalent of 11.25 per cent on its outstanding stock. The company is now paying dividends at the rate of four per cent, calling for $2,511,000 in 1917.

In reviewing the annual report for the calendar year 1916 it was said that: "Present prospects are encouraging in respect to the ability of the property to earn net somewhere in the neighborhood of $7,000,000." Even under the quite extraordinary conditions of 1917 the property justified this estimate.

Total operating revenues in 1917 amounted to $54,644,000, an increase of $4,809,000, or 9.65 per cent over the previous year. Operating expenses amounted to $38,106,000, an increase of $5,407,000, or 16.54 per cent. Increased wage scales alone accounted for an increase of approximately $3,051,000 in expenses. This included an increase granted to clerks in the general offices and offices on the line, which increases went into effect in October, November and December. Although during the year the company bought the entire capital stock and $500,000 par amount of notes of the West Pocahontas Fuel Company in order to protect its fuel requirements, the cost of fuel in 1917 mounted almost enough when added to the increase in wage scales to account for the entire increase in operating expenses. Miscellaneous income, however, of the Chesapeake & Ohio increasd by 64 per cent in 1917, amounting to $2,697,000.

It had been expected to open the Chesapeake & Ohio Northern for operation early in 1917, but actually the road was not opened until the middle of September. The Chesapeake & Ohio Northern consists of 29 miles of road built by a subsidiary of the Chesapeake & Ohio from Limeville, Ky., to Waverly, Ohio, with trackage rights from Waverly over the Norfolk & Western for 62 miles, to a connection with the Hocking Valley and with trackage rights for about a mile over the Hocking Valley to Parsons yard at Columbus, Ohio. For the greater part of the year, therefore, Chesapeake & Ohio earnings were not benefited at all by getting a connection with the Hocking Valley, and even from September to the end of December only a part of the traffic which will under ordinary circumstances be handled over this line, moved that way.



Chesapeake & Ohio

On the other hand the Chesapeake & Ohio did get the benefit of a higher rate per ton per mile, both on coal and all other freight. The revenue from coal per ton per mile in 1917 was 3.23 mills, as compared with 3.02 mills in 1916, an increase of seven per cent. The revenue per ton per mile on freight other than coal was 6.45 mills in 1917, as against 5.70 mills in 1916, an increase of 13 per cent. When one stops to think that it is customary in many cities and towns to charge 50 cents additional for a ton of coal when it is carried into the cellar, an average of certainly not more than 100 ft., the charge the railroad company makes of 3.23 mills for moving the coal one mile or less than 1/150 of the charge which the coal man makes for moving the coal 100 ft., one gets some idea of the extent to which a railroad like the Chesapeake & Ohio adds to the national wealth in each day of its operation.

In 1916 the Chesapeake & Ohio was the only road of 2,000 miles or over with a revenue train load of more than 1,000 tons. Since then the Norfolk & Western has joined this class, and in 1917 the Chesapeake & Ohio increased its train load by 36 tons, making the average 1,043 tons. Including company freight, the average in 1917 for the Chesapeake & Ohio was 1,112 tons.

There was a considerable increase in expenditures for maintenance of way. In 1917 $6,906,000 was spent on this account, an increase over the amount spent in 1916 of nearly 14 per cent. Rails and ballast were the only two items which showed large important decreases, and the reason for the decrease in ballast is probably a combination of circumstances, including the fact that the ballast situation was in such good condition as to not call for extensive ballast renewal.

Maintenance of equipment cost $10,522,000, an increase of only 2.08 per cent. During the year 50 Mallet locomotives were added and three locomotives were retired. At the end of the year 8.4 per cent of the locomotives in service were undergoing or awaiting general repairs. This is a rather large percentage. On the other hand only three per cent of the freight cars in service were undergoing or awaiting general repairs. At the end of the year the company had on hand $2,260,000 cash, with no loans and bills payable except $95,000, which nominally comes under this head.

The following table shows the principal figures for operation in 1917 as compared with 1916:

	1917	1916
Average mileage operated	2,412	2,379
Freight revenue	$42,998,223	$39,888,932
Passenger revenue	7,899,452	6,435,025
Total operating revenues	54,643,794	49,834,312
Maintenance of way and structures	6,905,579	6,067,658
Maintenance of equipment	10,521,724	10,240,498
Traffic expenses	694,131	675,381
Transportation expenses	18,537,582	14,355,565
General expenses	1,119,732	1,035,932
Total operating expenses	38,105,806	32,698,676
Taxes	2,439,331	1,636,604
Operating income	14,095,160	15,486,677
Gross income	16,792,322	17,127,820
Net income	7,066,378	7,666,882
Dividends	2,511,264	1,255,632
Surplus	4,555,114	6,411,250

New Books

Comparative Tests of Six Sizes of Illinois Coal on a Mikado Locomotive. By Edward C. Schmidt, et al. Bulletin No. 101, Engineering Experiment Station, University of Illinois, 100 pages, 6 in. by 9 in., bound in paper. Published by the University of Illinois, Urbana, Ill. Price, 50 cents.

This bulletin contains a complete report of the tests which were run on the locomotive testing plant of the University of Illinois with a Baltimore & Ohio Mikado type locomotive, by the Committee on Fuel Tests of the International Railway Fuel Association, the Engineering Experiment Station of the University and the United States Bureau of Mines. An account of the same tests was presented by the Committee on Fuel Tests at the 1917 convention of the International Railway Fuel Association, and an abstract of this report appeared in the *Railway Age Gazette* for July 13, 1917, page 51.

What is Fair? By William G. Raymond, professor of civil engineering and dean of the College of Applied Science, State University of Iowa, Iowa City, Iowa. 172 pages, 4½ in. by 6½ in. Bound in cloth. Published by John Wiley & Sons, Inc., New York. Price, $1.00.

This book discusses the relations between the railways and other public utilities and the public. It is divided into five chapters with the titles, General Relationships; Suitable Control; Rate Control; What is Fair Return? and Valuation. Its attitude is decidedly refreshing in contrast with that of many recent utterances on this subject. In the preface the author states that "the book is the result of an honest effort, extending over some years, to determine for the author's own satisfaction just what is fair in the relationships of the public and the owners of its utilities. Always he asks, "What is fair?"

He draws a parallel throughout the book between the individual in business and the corporation. The corporation is defined as "an artificial individual which, within the limits of its privileges, does business just as a natural individual does." The author states further that "men go into the business of furnishing public service—service that is generally recognized to be a proper, if desirable, public function—for exactly the same reason that men go into any other business namely: to make money."

In discussing earnings his attitude is shown by the statement that "it is intended to declare that earning large profits is not *per se* a crime or misdemeanor; that except as it must be governed by the terms of its agreement with the public, a public utility corporation should stand on the same footing as any private business catering to or depending on the public for support."

The author lays particular stress upon the character of control which should be exercised over a corporation. He states that "governing the use of property and taking property are two different things, which should be clearly distinguished but are sometimes confused." In these days of widespread diversity of ideas regarding the duties of public regulating bodies and their responsibility to the public and to the utilities, it is refreshing to note the attitude of the author which is reflected in the following sentences: "When an engineer is employed to supervise the construction of a great work being performed under contract, it is his duty to help the progress of the work. He is there to see that no dishonest work or improper material goes into the structure if attempts are made to defraud in these ways; but just as much is it his duty to do what he can to forward the work, assisting rather than nagging or hindering the contractor. * * * It is just as much the duty of a public utility regulating body to try to make the attitude of the public toward the corporation to be fair, as it is to insist that the corporation shall be fair in its dealings with the public."

The attitude of the author, as expressed in this book is so thoroughly founded upon the query "what is fair" that one is forced to agree with the correctness of most of his conclusions. The book should be of much interest and value to all interested in the regulation of public utilities and should have an important influence in arriving at the correct solution of the perplexing problems confronting the corporations and the regulatory bodies.

Letters to the Editor

Locomotive Cost as Related to Service

WASHINGTON, D. C.

TO THE EDITOR:

The Purchasing Department of the Railroad Administration, in placing orders for locomotives and freight cars, has exacted a basis of approximately estimated cost plus five per cent profit for both classes of equipment.

A freight car is constructed mainly of unmachined parts by a large percentage of unskilled labor. Refined workmanship, material and appliances are vitally essential to only a limited extent in a freight car as a whole to insure proper safety, operation and maintenance, as it is not subject to pressures, stresses and conditions such as a locomotive.

A steam locomotive is a highly specialized piece of mobile machinery, generating the power necessary for its propulsion and for the development of great hauling capacity. Its running gear, boiler and engines must be of such design, workmanship and material, and equipped with control and other auxiliary mechanism of such refinement as will insure maximum safety, precision of manipulation and ease of handling at all times. Furthermore, it must be so equipped that the labor, fuel, water, lubricants and other supplies required for its operation can be effectively and economically utilized.

Railroads in the United States have gotten just what they were willing to pay for, the same as purchasers of other commodities—no more, no less. Perhaps the locomotives were good enough, but are we not now aiming at a lower standard?

To place the profit on a locomotive at a figure so low that an unavoidable interruption of the plant output from any of many possible causes or increases in labor and overhead charges might jeopardize the making of any profit whatsoever or possibly incurring a loss, would seem to result in but one tendency—that of lowering a standard of excellence none too high.

In the locomotive building industry the builder, unlike the manufacturer of a staple article whose costs are known from day to day, bases his proposals for new locomotives upon an estimate computed from previous performances in connection with the building of locomotives of as nearly the same design as can be obtained. However, owing to variation in designs and material and construction specifications, it is impossible to secure a correct check on the cost figures and it often happens that an estimated profit may be greatly reduced or actually converted into a loss. The filling up of the building plants with locomotives of an entirely new design places the matter of profit in a much more precarious position than were the builders to receive part of their orders in duplicates of previous designs. It is hardly to be expected that the Government can guarantee the labor and material figures that the builders must use in their estimates, and if these should be lower than anticipated, the Government will benefit through existing taxation.

How does the Government expect to secure all that is vitally essential to the best interests of the railways and of the officers, engineers, firemen, mechanics and others directly concerned in the locomotive supervision, working and upkeep, upon whom it is dependent for the final result, if the first cost of design, material and construction is to be placed on a parity with that for a freight car? What assurance is given to those directly concerned that the standard practice heretofore developed is to be maintained? The Government should certainly set a higher standard throughout than has obtained from private management, not only in first construction but in the "follow up" service.

Other countries having both Government and private ownership of railways work on the basis of intensive competition and high-grade individual interest, endeavor, design and workmanship. Why, then, should not the United States do the same? Steam railway locomotives have, during the past twenty years, gone through a great development stage. Many failures have occurred in new combinations of designs and materials embodied in cylinders, frames, fireboxes, axles, rods, motion gear, and mechanical appliances which have necessitated a certain amount of renewal and reconstruction. Are we to now throw many of the results of these years of accomplishment into the discard through any incentive to lower the standard of design, workmanship and material in order to meet a relatively low first cost?

The director general's advisors are establishing an untried practice in the purchase of locomotives that is bound to result in chaotic conditions, and which, if continued, will cause serious embarrassment to not only the Government and its employees, but to the general commercial and shipping public and all others who are directly involved and dependent upon transportation for the prosecution of the war and industrial activity. Unfortunately, the railways, their employees, and the people will ultimately be required to assume the burden of and pay for the experiment. LIBERTY BONDHOLDER.

Constructive Rehabilitation Pays

SCARSDALE, N. Y.

TO THE EDITOR:

At this time when the owners of all classes of railway securities in all parts of the world are watching with keen interest the administration of the railways in the United States by the government, the case of the Kansas City Southern may be cited to show what can be accomplished by the vigorous prosecution of a definite rehabilitation program.

This railway is a relatively small property and extends from Kansas City, Mo., which is in the vicinity of the geographical center of the United States, to the Gulf of Mexico, a distance of about 800 miles.

During 1917 it hauled about 35 *per cent more freight* and 25 *per cent more passenger* traffic, at lower freight and passenger rates, with 15 *per cent less locomotives* at an *operating ratio of about* 8 *per cent less,* as compared with ten years ago, and at the same time *did not put out a single embargo* but accepted and expeditiously moved all traffic offering along its own line and from connections.

This was the outcome of the constructive policy of the management that has obtained on that property during the past ten years, and which has resulted in doubling the revenue freight train load by improvements in grade and alignment, operating divisions, and shop and enginehouse facilities; strengthening equipment by the substitution of new types of locomotives and cars more suitable for the operating conditions for those that were obsolete and inadequate, and by the modernizing and reinforcement of existing locomotives that could, by that change, be made to perform more effective and economical service.

While the neighboring and competitive railways, such as the Wabash; Missouri Pacific; Iron Mountain; Missouri, Kansas & Texas; 'Frisco; Texas & Pacific; Missouri, Oklahoma & Gulf; International & Great Northern; Cotton Belt, and others have—during the past ten years—either passed their preferred stock dividends or otherwise defaulted in interest or gone into the hands of receivers, the Kansas City Southern has been earning and paying its preferred dividends and building up a substantial surplus besides, in addition to paying the interest on long-term bonds and the interest and principal on equipment notes that it has put out to take care of the rehabilitation work that has made its performance possible. J. E. MUHLFELD.

Commission Recommends Increases of $300,000,000

Graduated Scale Suggested—43 Per Cent to Those Paid $46 a Month Down to $1 for Those Paid $249 a Month

THE REPORT OF THE RAILWAY WAGE COMMISSION to Director General McAdoo, recommending increases in wages estimated to approximate $300,000,000 a year over the present payroll was given out Wednesday, although still under advisement by McAdoo for his decision, because of premature newspaper publication.

The commission reached the conclusion and recommends that the fairest method of dealing with the problem of wage increases is to award increases on a percentage scale ranging from 43 per cent for employees receiving $46 a month and under, down to $1 for those receiving $249. These percentages are based on the rates of December, 1915. The percentages awarded by $10 grades are as follows:

Wages per Month.	Per Cent of Increase.
$50	43
60	41
70	41
80	40.44
90	36.38
100	31.29
110	27.12
120	23.64
130	20.69
140	18.16
150	15.96
160	14.04
170	12.34
180	10.83
190	9.48
200	8.26
210	7.16
220	6.15
230	5.24
238	4.56

239 to 250 increases are enough to make up $250.

The increases per month therefore range from $1 up to $34, which is the increase for employees now receiving around $85 a month.

If an employee has received an increase since December 31, 1915, it will be used to make up the recommended increase. The commission has also made some investigation of salaries of officers receiving above $5,000 yearly, and states that substantial readjustment may be made and efficient operation of roads promoted thereby. The commission recommends that during the period of government conduct of the roads no salaries be paid to officials not essential to operation of roads shall be charged as a part of operating expenses and that careful study be made of the proper relation between salaries of higher officials and their subordinates with a view to readjustment.

The commission recommends also that there should be constituted a tribunal or tribunals to continue the study of railroad labor problems and says that the existing state of war prohibits anything approximating a determination of ideal conditions.

The requests made for wage increases would involve an additional outlay in wages of somewhat over one billion dollars a year.

At the outset it was seen that there were the gravest inequalities in wages paid, but to reclassify employments would call for more time, skill, insight and knowledge than that possessed by the commission. The commission made an exhaustive investigation of the increased cost of living and found large increases necessary to meet it, saying each dollar now represents in power to purchase a place to live, food to eat and clothing to wear, but 71 cents as against 100 cents on January 1, 1916.

Statistics gathered by the commission showed that 51 per cent of all employees in December, 1917, received $75 per month or less. Eighty per cent received $100 per month or less. Among locomotive engineers the preponderant number received less than $170. Between the grades receiving from $150 to $250 per month there are included less than 3 per cent of all employees, 66,000 out of 2,000,000. The greatest number of employees are in the class receiving between $60 and $65 per month.

Reductions in hours are not to be regarded as increases in pay, the report says; as to those who have already received increases, the railroads scale should be adhered to, but there should be no reduction. A practical plan for increases in harmony with the scale has been devised for application to piece work and wages for recognized overtime.

A similar practical plan has been devised for application to the mileage rates for trainmen, which will be increased proportionately. The commission believes that this is not a time to reduce hours of work, and while it is strongly disposed to a standard day, its judgment is that existing hours of service should be maintained for the period of war.

Existing rules and conditions of payment for overtime should not be disturbed during the war, but should be made the subject of study. Increases shall be effective as of January 1, and members of organizations and non-members must stand upon the same footing.

"Whatever its effect upon the mind may be," the commission says in discussing amount of the increase, "we regard such an expenditure as necessary for the immediate allaying of a feeling that cannot be wisely fostered by national inaction in and as not one dollar more than justice at this time requires. It will make hard places smoother for many who are now in sore need. It gives no bounty, it is not a bonus. It is no more than an honorable meeting of an obligation."

INCREASED COST OF EGYPTIAN RAILWAY FUEL.—The Egyptian Budget for 1918-1919 shows that the increase in expenditure is due to the high prices of material, food and fuel, the extra cost of fuel for railways amounting to £950,000 ($4,750,000).—*Railway Gazette, London.*

CHINESE EASTERN RAILWAY STOCKHOLDERS have severed the official connection of the road with Petrograd, according to press despatches, and have named a new board of directors. The road was built with Russian capital and the contract provided that half the board should be Russians. The decision reached by the shareholders was based on "present conditions in Russia."

GOODS STOLEN ON PRUSSIAN STATE RAILWAYS.—The Prussian State Railways in 1917 paid 57,000,000 marks ($14,250,000 at pre-war rates) compensation for property lost or stolen in transit, compared with 4,000,000 marks ($1,000,000) in 1914. The German Post Office paid 3,000,000 marks ($750,000) in 1917 for similar losses compared with 100,000 marks ($250,000) in 1912. The robberies on the Austrian railways are reported to be probably even greater than in Germany.

Two Large Railway Terminals Under Construction

Yards Being Built By the Illinois Central and the New Haven, Will Embody a Number of Novel Features

TWO LARGE CLASSIFICATION YARDS, one under construction for several months and the other one recently authorized, offer an interesting opportunity for a comparison of railway facilities designed for heavy traffic conditions, but in which the physical conditions and traffic requirements are of a distinctly different character. The first of these terminals is the Cedar Hill yard of the New York, New Haven & Hartford, near New Haven, Conn.; the other is the proposed Markham yard of the Illinois Central, just south of Chicago. The first involves a complex, highly specialized arrangement to classify and dispose of cars entering and leaving over four different lines. The second embodies a relatively simple plan, although carried out on an enormous scale, to handle the very heavy traffic entering and leaving Chicago via a single route, the main line of the Illinois Central to the south. In the one case, crossings of main arteries of traffic necessitated six grade separations; in the other movements of main traffic across one another are entirely avoided.

North Half of the Markham Yard

The Illinois Central Yard

The Illinois Central yard will have a total capacity of over 13,000 cars and will be notable because of a north-bound classification yard which has 62 tracks of a total capacity of 2,931 cars served from a single hump. Located between Harvey, Ill., and Homewood, the center of the yard is about 21 miles from the South Water Street terminal of the Illinois Central, in the business center of Chicago. It was found desirable to place the yard at this distance from the city for several reasons, chief among which were the absence of available areas of adequate length further north, the impracticability of enlarging any of the road's existing yards, the desirability of locating the terminals south of all important transfer junctions in the Chicago switching territory, and the relation of the proposed location of the yard to the possible limits of a future electrified zone for the Chicago district. It is the intention that the new yard will serve as a terminal for all road trains on the main line to the south, and that all movements north of this terminal will be handled by transfer crews. This yard does not in any way affect the terminal facilities for the Illinois Central's line to Omaha, since the latter connects with the main line to the south only a short distance south of the South Water Street yard, the northern terminus of the railway. A yard is located on this western line about seven miles west of the city, where cars coming in over this line are classified for city distribution. Moreover, since the bulk of the traffic interchanged between the Omaha and the Memphis-New Orleans line is handled via the north and south line between Freeport, Ill., and Centralia, the interchange between the two main lines at Chicago is relatively small.

This large improvement has been found necessary because of the great increase in the traffic entering and leaving the city from the south, which is rendering the existing yards of the Illinois Central inadequate. An idea of the growth of this traffic is to be obtained from the following table, showing the number of loaded cars arriving at the Chicago terminal from the south for the month of March in the years 1913, 1917 and 1918:

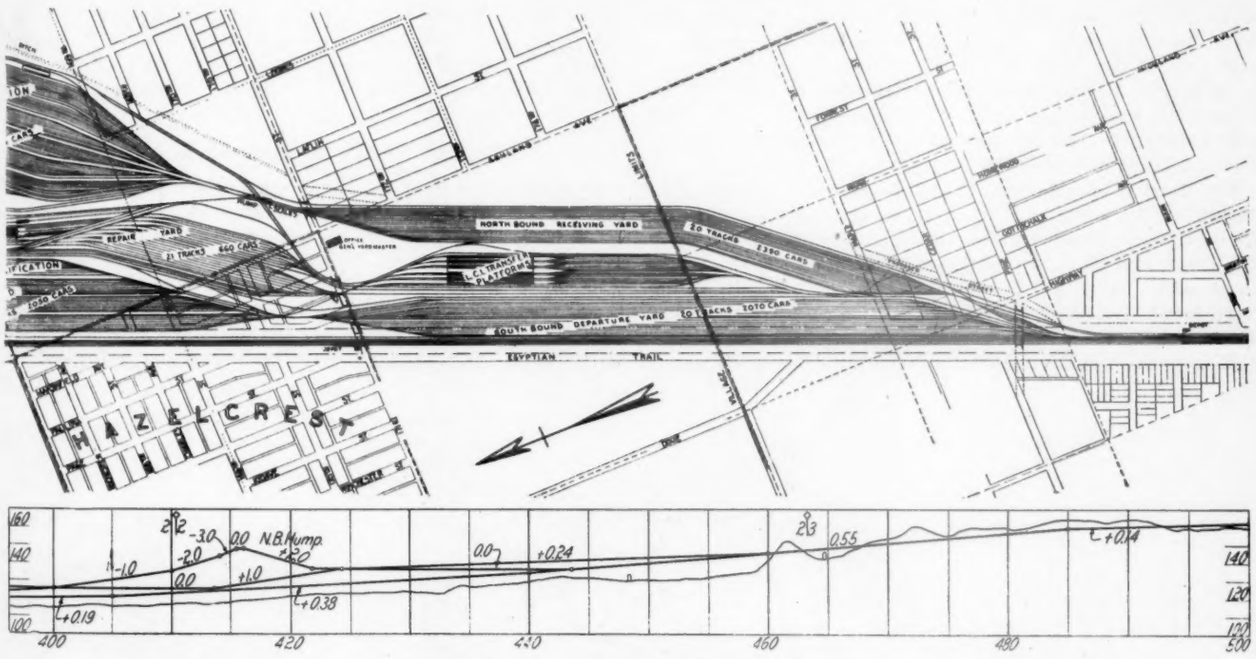
	Number	Average per day
March, 1913	17,897	577
March, 1917	29,315	945
March, 1918	33,899	1,093

At the site of this yard the main line of the Illinois Central now comprises four main tracks—two passenger tracks on the west and two freight tracks on the east. The proposed yard will occupy a large tract of land east of the

present right-of-way. By throwing the northbound freight track to the extreme east side of this tract and placing the new yard between this track and the existing southbound freight track, a layout is secured which can be operated without any crossover movements. An examination of the profile shows that there is a rise of about 50 ft. from the north to the south in the three-mile length of the site. As a consequence the grades are generally favorable to the northbound or loaded car movement. As laid out there is a 0.96 per cent grade into the southbound receiving yard, and a 1.0 per cent grade between the southbound classification yard and the departure yard, the grade through the latter being 0.55 per cent. The maximum grade opposing the northbound movement, with the exception of the hump grade, is 0.35 per cent. More advantageous grades might have been obtained if it had not been necessary to elevate the tracks to separate the grades from those of the streets of Hazelcrest, Homewood and Harvey, which cross the tracks in the three miles included within the limits of the yard. The grades ascending the humps are 2.0 per cent in both directions, but the descending grades serving the two outside tracks on the east side of the classification yard.

Special Arrangement to Return Riders

Both classification yards of this terminal will be provided with special facilities for returning the riders to the humps. A similar plan is to be carried out in the New Haven yard, One or more tracks will be provided in the body of each yard for the use of motor cars to accommodate the riders. To avoid the ladder tracks radiating from the hump, these motor car tracks will enter subways in the vicinity of the hump, passing underneath the approach tracks and out to the side of the hump embankment, where the cars can be conveniently brought to a destination along the side of the summit. As a further convenience in the Illinois Central plan, midway of the length of the classification yards, small pedestrian subways are to be provided crosswise of the yard, with entrances between tracks at convenient intervals and affording ready access to the motor car tracks. Thus it will be possible for the riders to reach the motor cars without having to climb over a great many cars standing on the yard tracks.



South Half of the Markham Yard

of the southbound hump are 3.5, 1.5 and 0.75 per cent respectively, as against 3.0, 2.0 and 1.0 per cent on the northbound hump.

The Northbound Yard

The northbound yard consists of a receiving yard of 20 tracks, having a total capacity of 2,389 cars, a classification yard of 62 tracks, with a capacity of 2,921 cars, and a departure yard of 20 tracks with a space for 1,650 cars. The large number of tracks proposed for the classification yard are planned to permit necessary distribution of cars called for by the many different transfers and important industries served in the Chicago terminal district. In most cases one track is provided for each transfer, but the clearing yard and a few other especially large transfers are allotted more than one track each. One special part of this yard comprises a grid of 16 tracks holding 13 cars each, on which trains are subdivided into cuts of cars destined for the various industries on the Illinois Central's line in the city, so that the transfer engines can make deliveries with the minimum switching. Another feature of the yard is an icing station

The Southbound Yard

The southbound yard has a receiving yard of 20 tracks, with a capacity of 1,537 cars; a classification yard of 40 tracks, with space for 2,051 cars, and a departure yard of 20 tracks, with a capacity of 2,072 cars. The tracks in the southbound classification yard are relatively longer than those in the northbound yard, some of the tracks in the former accommodating over 70 cars. This greater length is desirable in the southbound yard on account of the classification of the large number of empty coal cars.

Transfer Station

Parallel to the southbound departure yard and with convenient connection with the southbound classification yard, the plan provides for a less-than-carload transfer station, where freight received in trap cars and from the different city stations may be consolidated for movement to destination. This station will consist of five platforms 700 ft. long, with

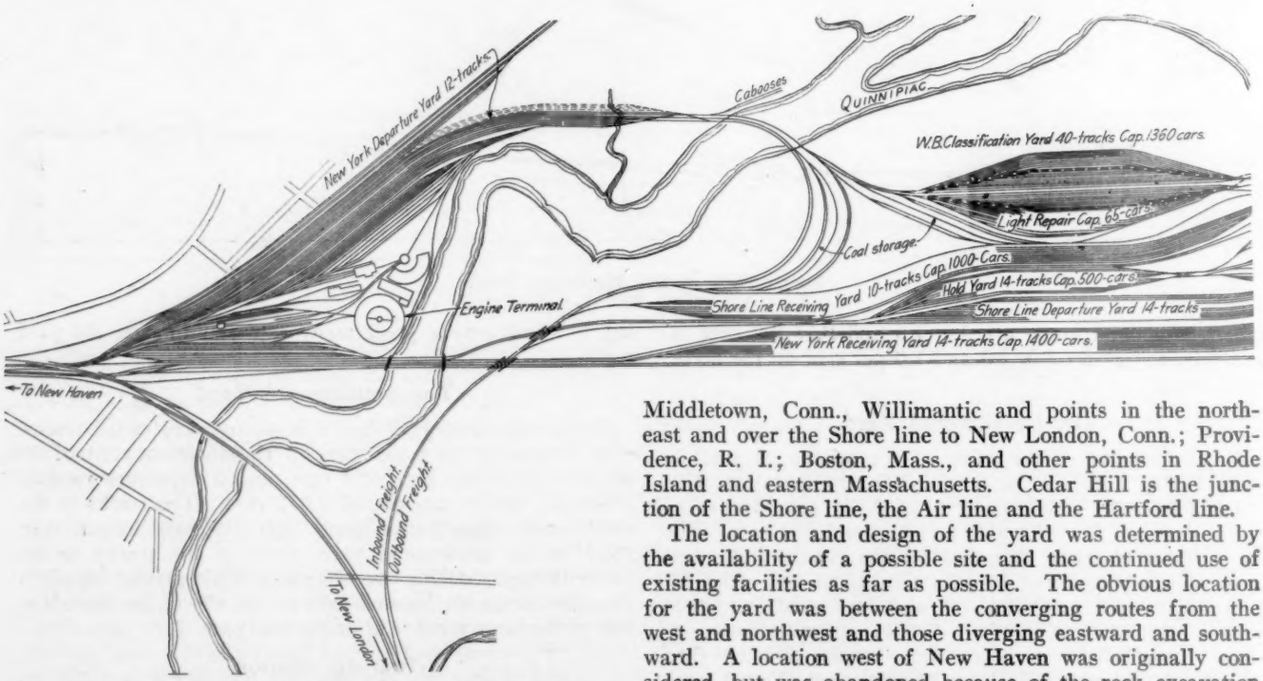
tracks on either side, and with a supporting yard immediately to the south of equivalent track capacity, so that a rapid shift of the cars at the platforms may be made at meal times or other periods of the day when the men are not working on the platforms. The south end of the transfer yard is connected directly with the northbound receiving yard, so that any cars in the transfer for destination north may be rehandled over the northbound hump.

A repair yard of 21 tracks, holding 660 cars, with convenient connections with both humps, is provided between the two yards. To the north of the repair yard space is arranged for an engine terminal to serve both road and transfer engines.

The plan contemplates complete engine terminal facilities, including two roundhouses, a large coaling station, etc. For the purpose of turning engines without the necessity for using the turntables, a circle track is proposed, as shown on the map. This is intended primarily for the use of the transfer engines, which will be turned frequently without need of entering the roundhouses.

The project will involve the placing of about 6,000,000 cu. yd. of filling, which will be sand taken from a pit about two miles from the yard. As may be seen from the profile, a large part of the yard will be on fill varying from 2 to 15 ft. in height. The northbound hump requires a fill of 30 ft. and the southbound hump a fill of nearly 40 ft. The work contemplated for the present season includes the placing of about 2,000,000 cu. yd. of filling.

The street subways under the yard constitute a formidable feature of the work. There will be five subways for the city of Harvey, three of which are the full width of the street and two, 8 and 10 ft. wide respectively, for the use of pedestrians only. The one for One Hundred and Fifty-ninth street, 66 ft. by 125 ft. in section, will pass under 40 tracks. Several other subways are proposed for streets in the village of Homewood, but have not been definitely determined upon.



Southwest Half of the Cedar Hill Yard

The terminal plan also contemplates interlocking plants, electric lighting, pneumatic tube systems for the despatching of way bills, automatic scales at the hump, and other modern facilities.

The New Haven Freight Terminal

The New York, New Haven & Hartford Railroad is constructing a terminal and classification yard at Cedar Hill, New Haven, Conn., to relieve the congestion in existing yards and terminals caused by the unprecedented industrial development in New England since 1915, during which period business in many places has grown more than 100 per cent. It will furnish the facilities to receive trains from all routes converging at New Haven and the classification of the received cars into trains for their proper destination.

The terminal, including connections, is 6 miles long and ½ mile wide. The present installation is to have a standing capacity of 6,500 cars, and when entirely complete the terminal will have a capacity for 11,000 cars. The project involves 2,836,000 cu. yd. of grading, consisting of sand and gravel, 23,000 cu. yd. of concrete, 2,000 piles for masonry supports, and 3,000 lin. ft. of single-track trestle for river crossings.

The 95 miles of track to be laid require 13,000 tons of rail and 460 switches. The work has been carried on since June, 1917, by railroad forces consisting of from 275 to 500 men, with mechanical equipment including 7 steam shovels, 2 Jordan spreaders, 120 air dump cars of 16 and 20-cu. yd. capacity, and 4 pile drivers. Thus far 525,000 cu. yd. of sand and gravel have been removed.

Handles Traffic of Several Routes

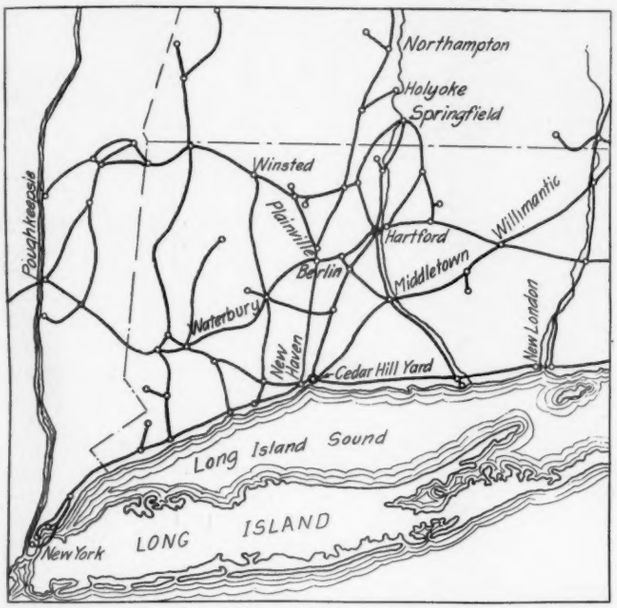
A location near New Haven was chosen for the yard site because of the relative importance of this city to the entire New Haven system. As shown in the map, important lines radiate from New Haven to New York; to the west over the Poughkeepsie bridge route; to the north via the Canal line to Holyoke, Mass., and Northampton; to Waterbury, Conn., and Winsted; via the Hartford line to Hartford, Conn., and Springfield, Mass.; via the Air Line to Middletown, Conn., Willimantic and points in the northeast and over the Shore line to New London, Conn.; Providence, R. I.; Boston, Mass., and other points in Rhode Island and eastern Massachusetts. Cedar Hill is the junction of the Shore line, the Air line and the Hartford line.

The location and design of the yard was determined by the availability of a possible site and the continued use of existing facilities as far as possible. The obvious location for the yard was between the converging routes from the west and northwest and those diverging eastward and southward. A location west of New Haven was originally considered, but was abandoned because of the rock excavation necessary as disclosed by tests, and other difficulties which made this location prohibitive. The site chosen for the yard is in the eastern portion of the city of New Haven and is partly on tide land and partly on uplands composed largely of sand. This provides excellent material for grading, and the contour of the site is such that the excavation and filling

balance. The course of the Quinnipiac river necessitated the location along the Air Line, with a connection at the northern end of the yard across to the Hartford division.

Arrangement Is Complex

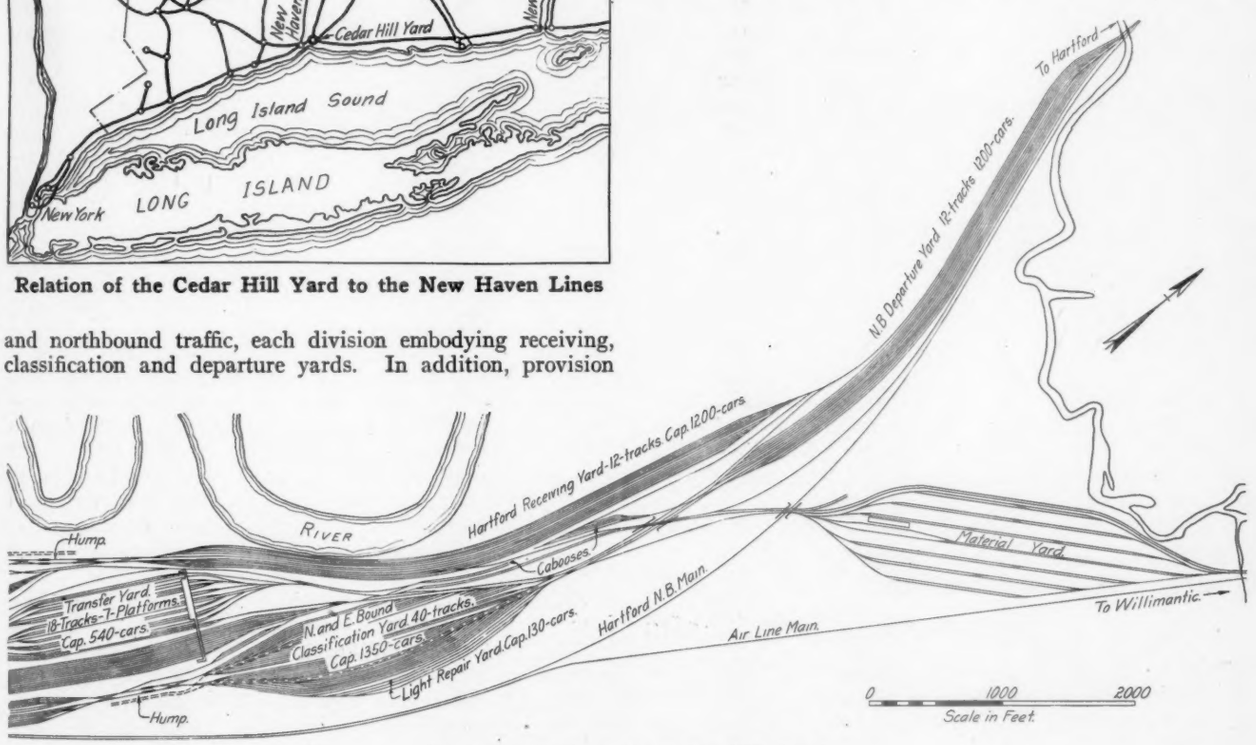
The yard is of the hump type and consists of two main divisions, one for westbound traffic and the other for east and northbound traffic, each division embodying receiving, classification and departure yards. In addition, provision has been made for a receiving and a departure yard for the Shore line trains and an l. c. l. transfer station with a supporting yard by which it is served through the agency of a third hump. There will also be a coal storage yard, a material yard and engine terminal facilities.



Relation of the Cedar Hill Yard to the New Haven Lines

The westbound division consists of a southbound receiving yard of 12 tracks with a capacity for 1,200 cars, a classification yard of 40 tracks having capacity for 1,360 cars, and a westbound departure yard of 12 tracks with capacity for 960 cars. The arrangement for the north and eastbound divisions is similar to the westbound division and consists of a receiving yard of 12 tracks, with capacity for 1,400 cars, a classification yard of 40 tracks having a capacity for 1,350 cars, and a northbound departure yard of 12 tracks with capacity for 1,200 cars. The Shore line receiving yard consists of 10 tracks with capacity for 1,000 cars. A connection is provided from this yard to both the westbound and the north and eastbound classification yard. The north end of the Shore line departure yard, which consists of 16 tracks, with capacity for 1,600 cars, is located in close proximity to the lower end of the eastbound classification yard, and the north end of the Shore line receiving yard adjoins the hump end of the westbound classification yard. With this arrangement the deadhead mileage of road power and yard power is minimized. Instead of making the light going or returning movement, as is customary in the usual hump yard, the light movements of the road engines are reduced, while yard engines will handle cars in both directions. The yard movements of power to and from trains is, within limits, comparatively close to the engine terminals. The Shore line departure yard will have both east and westbound connections at the southerly end, which will permit it to be used by through trains not requiring classification, but which require change of power, cabooses, inspection and possibly icing. Tracks for light repairs will adjoin each classification yard.

Speeder or motor car tracks for car riders will be provided between each pair of leads in each of the classification yards. As in the Illinois Central yard, these tracks will pass under the tracks at the throat of the yard below the hump and extend along the hump, terminating beyond it, opposite the point where the car riders take the cut-off cars they are to handle.



Northeast Half of the Cedar Hill Yard

The relative location of the new yard and the tracks of the Shore line make it necessary for the heavy traffic of the Shore line to enter and leave the yard at the same time, making special arrangements and design necessary. It was necessary to provide for the separation of grades at several points as well as a re-routing of the northbound passenger trains to Hartford and Springfield around the east side of the yard, instead of west of it, as previously. At Air Line junction the westbound Shore line passenger trains will be carried overhead. At a point about one mile further east the westbound Shore line main will be carried beneath the eastbound freight connection from the yard. Both of the

Shore line freight connections, inbound and outbound, will pass over the Air line, the northbound passenger main to Hartford and the freight tracks over which traffic is received from the Harlem river and Poughkeepsie bridge routes.

The north-bound passenger main to Hartford will pass under the Air line, the material yard and other connections near the north end of the yard.

Special Facilities

The transfer station for less-than-carload freight, with its supporting yard, is located approximately in the center of the yard. This will be convenient for the receipt of such cars from the various routes and for the delivery of northbound cars to the various points from which the trains will depart.

On the completion of the yard, traffic from and to Plainville and the north on the Canal line to Holyoke and Northampton and other points will be routed into the new yard via New Britain and Berlin. At the same time through traffic via the Poughkeepsie bridge, heretofore handled over the pusher grades at Sandy Hook and Terryville, via Plainville, and for points east and north, will be routed over the low grade line through the Cedar Hill yard.

The New York-Maybrook departure yard is already electrified to the extent necessary for motors to reach and handle outbound trains. The electrification will be extended to include three or four tracks in the Shore Line departure yard.

The improvement includes a second turntable 95 ft. in length and an additional roundhouse of 18 stalls. Later additional facilities will be provided for the inspection and care of electrical power. These involve a small shop, inspection pits and pantagraph inspection platforms.

The Illinois Central yard is being designed and will be constructed under the direction of A. S. Baldwin, chief engineer, and F. L. Thompson, assistant chief engineer. The New Haven yard was designed under the direction of Edward Gagel, chief engineer, who also exercises general supervision over the construction. The prosecution of the work is under the immediate direction of I. D. Waterman, construction engineer.

Railroad Administration Organizes to Stop Thefts

THE LOSSES OF ONE WESTERN RAILROAD resulting from thefts totaled over twice as much in 1917 as in the previous year. This marked increase was due in part to advances in prices of the materials stolen and to increased traffic, but also in considerable measure to increased lawlessness on the part of employees and the public alike. This growing disrespect for law and order seems to be a manifestation of the unrest and callousness which is generally a concomitant of war. The problem of suppressing this anti-social spirit, which is equally acute on all railroads of the country, has been undertaken by Philip J. Doherty, recently appointed manager of the Property Protection Section of the Division of Law of the Railroad Administration.

Mr. Doherty is unifying the detective forces of all the carriers for the purpose of securing the highest degree of co-operation among them in combating the pilferage evil. He has already appointed T. T. Keliher, chief special agent of the Illinois Central, and R. S. Mitchell, chief special agent of the Missouri Pacific, as his local representatives in the Chicago and St. Louis districts, and will no doubt appoint other men to represent him in the remaining important railway centers. In addition, he will have a corps of secret service agents and attorneys reporting directly to him, who will assist the staffs of individual lines and check their work.

Section XI of the Railroad Control bill will prove a most effective aid to the Property Protection Section, as it is by far the strongest legislative enactment so far passed to prevent the theft of railroad property. It provides a maximum penalty upon conviction of ten years' imprisonment or a $5,000 fine, or both, and not only designates theft as a crime, but also tampering with or knowingly impeding the operation, use or possession of railroad property.

Prosecutions for violations of this section of the Railroad Control act will all be in the district courts of the United States under the direction of the attorney-general. The first conviction under the new law was recently secured in Chicago in the court presided over by Judge Kenesaw M. Landis.

This case was disposed of with despatch and forecasts expedited prosecutions of other cases which may come up under the Railroad Control act in the future. On February 2, Dante Cecchetto and Herman A. Heyne were arrested for stealing $150 worth of copper wire from the Illinois Central in Chicago. On March 29 the men were indicted, and on April 5 were convicted, fined $1,000 apiece and sentenced to three years in the Federal penitentiary at Leavenworth, Kan.

There are two classes of thieves on the railways, i. e., those who work individually and take property in small lots, and those who carry on their activities in well-organized groups. The latter class is more common in the large railway centers, where the chance of detection is smaller and the disposition of stolen goods easier. Sometimes the entire contents of a car are hauled away in trucks and wagons by these gangs. These organizations often have confedcrates among the railroad employees, thereby rendering it more difficult to trace them. A recent case of bootlegging discovered on a middle western line indicates the extent to which railroad employees are sometimes involved in these conspiracies. Through the connivance of train crews and yard men regular shipments of liquor were made from a wet state into dry territory, where they were disposed of at great profit to all concerned. As all the railroad employees who handled the cars participated in this traffic, no record of the car movements reached higher railroad officers, and as a result the practice continued for some time before it was detected.

The proportions of the theft problem may be gathered from a recent statement in the press by G. S. Ward, chief special agent of the Wabash, who estimates that $35,000 worth of freight is stolen from the railroads in the St. Louis switching district every month. The property taken is usually such as will gain a ready sale, such as cigars, shoes, clothing and hardware. Journal brasses are also stolen in large quantities. These are removed from freight cars by the use of hydraulic jacks or other means of raising the body of the car from the truck. As the price of brass is exceptionally high, thieves find it very profitable to sell their stolen goods to junk men. In the past it has been almost impossible to prosecute this class of thieves because of the difficulty in proving the road to which the stolen brasses belonged. In the future, however, under the provisions of the Railroad Control act, it will only be necessary to prove that a brass was stolen from a railroad car and the federal authorities will do the rest.

In Chicago the unification of the secret service work of the railroads has led to the organization of a committee which will give special attention to the apprehension of thieves in the Chicago switching district. T. E. Pratt, chief special agent of the Chicago, Burlington & Quincy, is chairman of this committee, and the other members are H. H. Germain and William Briggs, of the Chicago, Rock Island & Pacific and Pennsylvania Lines, respectively.

Government Car and Locomotive Orders

Distribution of the Orders with a Discussion of the Prices, Specialties and Policies

WASHINGTON, D. C.

THE UNITED STATES RAILROAD ADMINISTRATION has announced the placing of orders for 100,000 freight cars, to be built to its standard specifications, including 50,000 box cars, and 50,000 hopper and gondola coal cars, divided between 17 car building companies, and 1,025 locomotives also of its standard types, 555 from the American Locomotive Company and 470 from the Baldwin Locomotive Company.

The total cost of the cars is placed at from $250,000,000 to $300,000,000 and of the locomotives at approximately $60,000,000, although the specialties have not yet been awarded and the final detailed contracts have not yet been executed. It is understood that 145 additional locomotives are to be awarded to the American Locomotive Company, and 30 to the Baldwin Locomotive Works, in about 60 days, and that approximately 1,000 additional locomotives and about 100,000 additional cars are to be ordered in about six months.

The first order for cars, 30,000 to the American Car & Foundry Company, was announced on April 25, and announcement of the allotment of orders for 70,000 additional cars was made on May 2. The locomotive orders were announced on April 30. A partial list, incorrect in some particulars, was published in last week's issue. It is now possible to give the complete list, with the division of both the cars and the locomotives by types and by companies, although there may be some modifications in the number and types of cars apportioned before the detail contracts are executed.

Cars

The total order includes cars of five types as shown in the following list:

25,000	40-ton	double sheathed box
25,000	50-ton	single sheathed box
20,000	50-ton	composite gondola
5,000	70-ton	low-side gondola
25,000	55-ton	hopper
100,000		

The distribution of the order by companies and types is as follows:

American Car & Foundry Co.	10,000	40-ton double sheathed box
	9,000	50-ton single sheathed box
	5,000	50-ton composite gondola
	6,000	55-ton hopper
Pressed Steel Car Co.	6,500	50-ton composite gondola
	5,000	55-ton hopper
	2,500	70-ton low side gondola
Standard Steel Car Co.	2,000	40-ton double sheathed box
	5,500	50-ton composite gondola
	5,000	55-ton hopper
	2,500	70-ton low side gondola
Pullman Co.	6,000	50-ton single sheathed box
	2,000	55-ton hopper
Haskell & Barker Car Co.	6,000	50-ton single sheathed box
	2,000	50-ton composite gondola
Ralston Steel Car Co.	4,000	55-ton hopper
Cambria Steel Co.	3,000	55-ton hopper
Magor Car Corporation	1,000	50-ton composite gondola
St. Louis Car Co.	1,000	50-ton single sheathed box
Mt. Vernon Car Co.	4,000	40-ton double sheathed box
Pacific Car & Foundry Co.	2,000	40-ton double sheathed box
Liberty Car & Equipment Co.	1,000	40-ton double sheathed box
Keith Car Mfg. Co.	1,000	40-ton double sheathed box
Laconia Car Co.	1,000	40-ton double sheathed box
Bettendorf Co.	3,000	50-ton single sheathed box
Lenoir Car Works	2,000	40-ton double sheathed box
Barney & Smith Car Co. (pending)	2,000	40-ton double sheathed box
Total	100,000	

Locomotives

The locomotive order was divided, 555 to the American Locomotive Company and 470 to the Baldwin Locomotive Works as follows:

American	Baldwin	Type
217	183	Light Mikado
70	30	Heavy Mikado
20	15	Light Mountain
3	2	Heavy Mountain
10	20	Light Pacific
10	10	Heavy Pacific
75	75	Light 2-10-2
25	10	Heavy 2-10-2
30	20	Six-wheel switching
75	75	Eight-wheel switching
15	15	(2-6-6-2) Mallet
5	15	(2-8-8-2) Mallet

The division of types given in last week's *Railway Age*, whereby the American Locomotive Company's 555 locomotives included only six types, was afterwards changed to the above.

This order for 1,025 locomotives will be increased probably before July 1 to 1,200, the American Locomotive Company being given 145 more locomotives to make 700 locomotives, and the Baldwin Locomotive Works 30 more, to make 500.

Prices

The car orders were all placed upon the basis of the minimum bids as to costs for labor and materials with the understanding that any reduction in costs which may be obtained from these fixed prices will be divided equally between the Railroad Administration and the car builders, but any increase in these costs will be borne exclusively by the builders. The government will have supervision or control as to the prices of the materials required in construction and in cases where the government has fixed prices these will be the maxima, but an effort is to be made to secure steel and other materials at prices below those previously fixed. In this case the builders will have an opportunity to share in the saving.

The compensation of the builders in the case of both cars and locomotives will be approximately 5 per cent on the cost, as estimated on the minimum bid. The contracts with the locomotive builders provide that the government guarantee the cost of material and that if any saving is made on the estimates other than that on the material, that it be divided equally between the government and the builders.

In the case of the locomotives, the announcement stated that deliveries are to begin in July and continue monthly during the remainder of the year, and in the case of the cars that it is hoped that the entire order will be completed in time for the fall and winter business of the railroads.

The general specifications and dimensions of eight types of freight cars as designed by the administration's car committees were published in the *Railway Age* of March 29, and the general drawings were published the following week. In the issue of April 12 the designs for an all-steel box car were published. After negotiations with the War Industries Board it was found necessary to curtail the steel requirements of the car program to a considerable extent because of the needs of the Army, Navy and Shipping Board, and the cars ordered are of five types. While both a 40-ton and a 50-ton steel frame single sheathed box car were designed, the orders are for the 50-ton type. The 50-ton steel gondola,

the 70-ton hopper car and the all-steel box car have not been ordered, and it was necessary to make some changes in the design of the 55-ton hopper car to use wooden sides and ends. Some additional minor changes in the designs have since been made and designs for flat, stock and refrigerator cars are still under consideration.

The tentative specifications and dimensions of the locomotives were published in the issue of April 19. These have been undergoing some final changes and are expected to be completed by the latter part of this week.

The question of specialties has been under consideration for several weeks. The manufacturers of locomotive specialties were called into conference with the Central Advisory Purchasing Committee on April 1, and were requested to submit bids by April 29. The bids on car specialties were to be in by May 4, but in both cases some additional time was allowed.

The Railroad Administration's mechanical committee held meetings last week to determine the specialties to be used, but announcement will not be made until the contracts are awarded. The question of specialties was to be considered at a joint meeting of the mechanical committee and the Central Advisory Purchasing Committee this week. The prices for the cars, according to the announcement from the office of the director general, average between $2,500 and $3,000 apiece. These include an arbitrary figure for the specialties and the final price will depend on the actual cost of the specialties and labor and materials. The cost of the locomotives averages a little less than $60 000, and it is understood ranges from about $35,000 for the light switching engines to about $90,000 for the heavy Mallet.

The statement given out regarding the locomotive order says: "The contracts were awarded on terms much more favorable to the railroads than the bids originally submitted by the builders." The terms for both the cars and the engines were the subject of protracted negotiations between John Skelton Williams, director of the division of finance and purchases, and the builders. It is understood that the car builders originally asked for cost plus 10 to 12 per cent, and that the locomotive builders originally asked 15 per cent. But they were required to submit their costs in detail, together with information as to their capitalization, previous profits, etc., and it was made evident that the Railroad Administration intended to drive a closer bargain than many departments of the government have.

The American Car & Foundry Company finally accepted approximately the terms proposed by Mr. Williams, and actually itself made the proposition which was adopted as the basis for the contracts. The other car building companies had to agree to accept the same terms to get orders. There has been much criticism in the railway supply field both of the government for using its monopoly power as the only purchaser of cars in the market to force down prices, and of the car company for accepting such terms. The American Car & Foundry Company has large orders from other departments of the government, on which it is understood to be receiving a much higher rate of profit, but had some untaken space that it could devote to cars. One company having accepted the low terms, it was manifest that others that refused to would not receive orders.

Specialties

A similar policy has been followed as to the specialties. When the manufacturers were asked to submit bids it was suggested that they forego royalties on patents and pool their patents so that several companies could manufacture the same device at the same time. While there has been no definite announcement of policy on the part of the Railroad Administration, it has asked the manufacturers in submitting their costs to itemize their royalties, and while there has been a great deal of opposition manifested to the idea on the part of the supply manufacturers some for various reasons have offered to waive royalties.

Meetings with various groups of manufacturers are being held this week by committees representing the purchasing department of the administration at which an effort is being made to break down the iron and steel prices previously fixed by agreement by the War Industries Board and the Iron and Steel Institute, which in many instances represented considerable reductions under the prices which had previously prevailed. One difficulty about the plan is that the manufacturers of railway materials and supplies will have to compete for labor in many cases with neighboring industries handling other government contracts on the basis of 10 per cent profit on whatever the cost happens to be.

The attempt which is being made by John Skelton Williams, director of purchases of the Railroad Administration, to break down the government prices on iron and steel may lead to some very interesting developments. The existing iron and steel prices were fixed by President Wilson, effective on January 1, 1918, through his approval of an agreement reached by the government's War Industries Board, on the one side, and a committee representing the American Iron and Steel Institute, on the other hand. The agreement was reached in December and fixed prices on plate, shapes and bars which were based on the previous prices prevalent in the five pre-war years 1910-15, multiplied by certain differentials, which gave prices of $2.90 per 100 lb. for steel bars, $3 per 100 lb. for shapes and $3.25 per 100 lb. for plates. By the terms of this agreement it was stipulated that there should be no reduction in the prevalent rate of wages in the industry. Subsequently the manufacturers of side frames, bolsters, couplers and similar articles, submitted to the Iron and Steel Institute a scale of prices which involved a reduction of 15 per cent from the prices in effect during the last quarter of 1917. Later, prices for malleable iron, springs, brake beams, etc., were submitted and verbally approved, though they have not been published. The iron and steel prices fixed have been mentioned in the published statements as "maximum" prices, but actually have been used as both minimum and maximum prices, and millions of dollars' worth of iron and steel products have been sold to the railway companies and other industries on the basis of these prices.

The contention of the Railroad Administration is that the iron and steel prices accepted by the War Industries Board are maximum, but not minimum prices, and that the railways should be sold iron and steel commodities at prices below the maximum. The railway specialty people point out, as already indicated, that millions of dollars' worth of commodities have been sold on the basis of these prices, that they have not been treated merely as maximum prices, and that since they were fixed there have been substantial increases in the wages of labor. One point which is urged with great force is that if the Railroad Administration succeeds in forcing down the government prices other government departments and commercial concerns will be left in the position of paying higher prices, that other government departments and commercial concerns will probably try to get the railroad prices and that the result will be to destroy the entire fabric of government iron and steel prices. Because of fear of this result the policy of the purchasing department of the Railroad Administration is arousing much antagonism among iron and steel manufacturers. It seems not improbable that the question of iron and steel prices to the railroads will get up to the War Industries Board and even to President Wilson before it is settled, as was the case with the question of prices of coal for the railroads.

Standardization Policies

The placing of the car and locomotive orders gives some additional indications of the government's policies as to

standardization. The statement issued regarding the locomotives says:

"The six standard types of locomotives, two sizes of each class, are expected eventually to supersede the many miscellaneous types and varieties of locomotives now in service, embracing engines built according to 500 or more varying specifications. This is the first time that any real forward step has been taken looking to the wide standardization of locomotive engines."

The announcement of the car orders also include the following:

"The five types of cars represent the standard forms of freight cars adopted by the Railroad Administration. These standards are the result of the labors of a committee of experts who for weeks past have been working upon the problem. The adoption of these standard types, it is believed, will eventually substitute a few scientifically worked out designs for the numerous miscellaneous varieties of cars, representing probably more than a thousand different old styles and specifications now in use, the accumulations of the past."

We have here a definite announcement that the standard types of car and locomotives are expected to represent a nucleus for eventually standardizing the entire motive power and car equipment of the railroads. They have not been adopted for the purpose of saving time in the placing of the car orders, for other orders for cars have been prohibited pending the adoption of the standard designs, and the fact that the five heavy Mountain type locomotives will be divided between the two companies, whereas they naturally could be turned out more quickly and at less expense if awarded to one company, indicates that they are expected to be the foundation for future similar orders to both companies.

While it is not expected that the six types (twelve designs) of locomotives and the five types of cars will meet all of the requirements in the way of varying conditions, it is understood that they have been selected as the types that will meet the greatest number of conditions, and will meet the most pressing demands. It is stated that the engines "will be allotted, upon completion, to the various railroad systems where they are most needed," that they will be lettered "U. S." and will remain the property of the government during its control of the roads. While the various railroads had been asked to signify how many of the standard locomotives they desired, they were given no opportunity to order any other kind, and they have filed their various requests for the number they desired to have allotted to them.

It is no secret that there has been a considerable difference of opinion in the Railroad Administration as to the extent to which the locomotive standards should be adhered to. Certain of the officers who have had to deal with the question have insisted on rigid standardization, while others have insisted that roads having special requirements should be allowed to order engines of their own designs. The memorandum recently addressed to the roads, in which it was stated that a road having unusual or unique situations to be met might make representation to the director general as to its individual necessity for a departure from the standard types, indicates a compromise between the two views. It has been stated that while it has never been expected that the types of locomotive adopted would serve all requirements, and that further variations would not be required, the intention is to make the more special types conform as closely as possible to those already ordered, using as many as possible of the standard parts. The requests for bids for specialties stated that no bid would be considered unless the device offered was interchangeable in its application with similar devices offered by other manufacturers, so that if various types of specialties are ordered a road may use the types it has on hand to replace others on any of the standard locomotives.

The list of car orders shows that the cars have been well distributed among the available plants, which will not only give each company a share of the business, but will probably insure more rapid delivery of a large number of cars than if the orders were placed with fewer companies. The distribution of the orders geographically will also simplify the distribution of the materials and avoid cross hauling. The Canadian Car & Foundry Company made strong efforts to secure a part of the orders, and at one time it was understood to have been awarded 7,500 cars, but the American companies opposed this, and the cars were later distributed to other companies. If later orders are found to take the capacity of the plants in this country the Canadian company will probably be considered.

The Railroad Revolution*

By W. G. McAdoo,
Director General of Railroads.

WITHIN THE LAST FOUR MONTHS we have gone through a tremendous revolution in this country, so far as the railroads are concerned. By one stroke of the pen, the President of the United States has transformed all these railroad systems, these separate, competitive systems, into one great unified transportation system for the purpose of making it certain that we, with the aid of our gallant soldiers and sailors, shall finish the military despotism of the Kaiser, and restore peace and liberty to a distracted world.

It is not only our soldiers and our sailors who are going to hand something to the Kaiser, but we railroad men are going to hand him something before we get through. We have it up our sleeves for him. He does not know it yet, but he will find it out before this war is ended..

The railroads of the United States have for a long time been the football of finance, of politics, and of all sorts of things. I am frank to say that I think it has been very hurtful to the country. I do not mean to reflect upon public bodies or officers or employees of railroads. I am not criticising; I am only speaking of facts. The things that have happened back of us are of no consequence except in so far as they teach us useful lessons for the future. So long as the railroads of the United States were used primarily for private and selfish ends, so long as they were made a political question, the difficulties of reconciling contending and competitive interests with the public interest have been insuperable. Railroads have been controlled too much in times past by the financial powers of the country, and there again I speak in no critical sense. I speak of it only because I want you to understand the conditions and what it is that we must do in the future to handle the railroads wisely. We must learn useful lessons of the past and apply them in the way that will best serve the vital interests of America.

The old private control has been abolished. We have a competitive system of railroads in the United States no longer. When I look at a locomotive or a freight or passenger car passing me, I do not care what name is painted on it—I can not see it. The only thing I can see on them is "U. S." I see those great machines going by, pulsating with life and energy, representing the majesty of America, with Uncle Sam's engineers and firemen in the box and Uncle Sam's freight men and trainmen in control; and I see Uncle Sam's officers, train masters, train despatchers, clerks, yardmen, and trackmen and everybody else in the railroad service of the United States on duty and keyed up with a desire to make themselves of the greatest service

*Extracts from an address to railroad employees at El Paso, Tex., April 17, 1918.

to the country in this hour of national peril. When I see these things it makes me very proud of you railroad men and very eager to be able to measure up to the great responsibilities that have been put upon me, to help you men do this great job for our beloved country. I doubt my own fitness and capacity, but as the President has chosen me for this service, like a good soldier I have responded, determined to do and to give the very best that is in me. Because I do not know it all, I want to learn all I can, and I know that I can not do this great job unless I have the loyal support and co-operation of the real soldiers of the railroads, because you, my friends, are soldiers in the ranks. You are soldiers of liberty. You are fighters for freedom. You and your officers are those upon whom I must rely if my services in this great railroad enterprise, this unified government control, are to be worth anything to the country or to you.

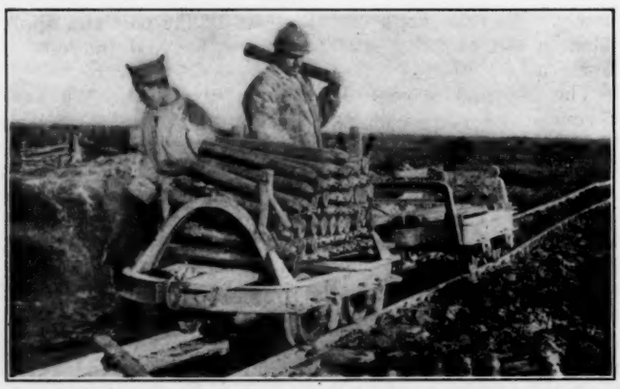
The railroads must function to the highest degree. Do you realize that we can not send our men across the high seas and protect them there, give them a chance to fight for their lives and for our safety, if the railroads do not function—not 50 or 60 or 90 per cent, not even 100 per cent, gentlemen, but 150 per cent, if necessary. If we make the railroads function even 150 per cent, is that comparable to the sacrifices that an American soldier makes upon the bloody battle field when he gives his life for us, or is maimed for life while fighting for us? By contrast, my friends, there is nothing we can do here that can compare with the sacrifices that our sons must make for us before the world is free again.

So I want to beg every railroad man—not only the officers, but the employees as well—to rededicate themselves to the service of their country. You are no longer the employees of any private railroad or corporation. You are employees of Uncle Sam. We are all enlisted in this one great service as fellow soldiers in the legion of liberty. If we pull together, if we do our work to the limit, if we spare ourselves in no way to accomplish the results, we shall certainly get them; there will not be an American soldier in Europe who will suffer because the railroads have not done their full part.

One thing we must all learn is this—that the old conditions have disappeared. We are all serving a common master—we are serving Uncle Sam. We are partners in a great and glorious enterprise. We must not encourage suspicion of each other. We must co-operate with each other. We must devote ourselves whole-heartedly to our work. We must respect our superior officers as we expect our superior officers to respect us. We must go forward with an unalterable determination that the rule of individual action must now be one thing and one thing only—an unselfish and unremitting love of country—a pure and undefiled Americanism above everything else.

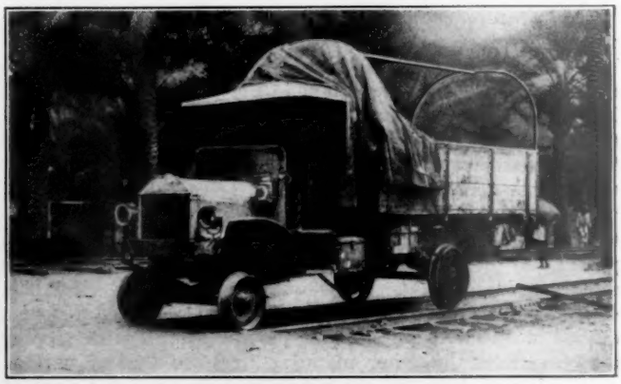
I have to speak judicially about the question of wage increases for the moment, because, having selected a commission to investigate the subject, I must let the commission complete its investigations and make its recommendations before I take action. But when the report comes in, I shall make a decision as promptly as I can after I have read the report. I am as anxious as you are to get these questions back of us. Perhaps I may be inadvertently a benefactor of all the men and their wives who are involved in this problem, because if an increase is granted, the full amount will have been saved for them, and can be invested in Liberty bonds. You will not have spent the increase in the meantime. Sometimes enforced saving is a mighty good thing. I wish Uncle Sam would hold back some of my pay and enforce savings upon me, if I could stand it. But Uncle Sam does not give me, as you know, any pay whatever for running the railroads of the United States. I am serving as Director General of Railroads without a cent of compensation, but I am delighted to serve for nothing if thereby I can be of the least value to my country.

But I do not want you men to serve for nothing, and I do not want you to be inadequately paid or unjustly treated. Railroad men have been cuffed about the country a great deal during the last few years, when there has been so much prejudice against the railroads, and the public attitude toward railroad managements as well as toward railroad employees has not been sympathetic, to say the least. Now we are all servants of the people of the United States, and I am sure that the public attitude is going to be different. It rests with us to make it different. We can earn the respect, sympathy and good will of the public by giving it a square deal, as we want the public to give us a square deal. You railroad men are all my boys now, and so long as you do your duty I do not intend to let anybody kick you around. You will find that I will defend you to the limit of my power as long as you are right, and I know that you will not expect me to defend you if you are wrong, because I won't. I am sure, however, that you will not be wrong, because we have a new inspiration to service now—to serve our great and glorious country in this desperate war between our democratic ideals and the repulsive ideals of the German military autocracy. We are, therefore, serving no private interests but our own interest, so long as the government controls the railroads, and we can go forward shoulder to shoulder, as patriotic and loyal citizens, determined to do our best, and in doing our best to serve ourselves as well as to serve our country. I want to express my appreciation to the railroad men of the United States for the subscriptions they have made heretofore to Liberty bonds.



Photos from Underwood & Underwood, N. Y.

A Belgian Salvage Party Makes Use of the Light Railway



A British Motor Truck on the Baghdad Railway

Doings of the United States Railroad Administration

Director General Returns to Washington Where Many Important Affairs Await His Attention

WASHINGTON, D. C.

DIRECTOR GENERAL McADOO returned to Washington on May 7 after an absence of nearly a month on his tour of the country making Liberty Loan speeches and a brief period of rest at White Sulphur Springs. There were many important matters awaiting his attention or decision, which had been developed by his staff during his absence, but an attack of tonsilitis compelled him to remain at his home for a few days.

One of the important matters which was expected to be decided soon after his return was the report of the Railroad Wage Commission. This has now been completed, or practically so, and a copy was taken to him to look over at White Sulphur Springs for his decision. It is understood, however, that the report is not yet entirely ready to be given out but it is known in a general way that it will recommend increases in wages for practically all classes of railway employees which will amount to several hundred million dollars a year.

Another matter which is practically ready for his approval is the contract with the express companies, which are to be merged into a single company and make a contract with the Railroad Administration for handling the express traffic on the basis of an approximately equal division of earnings. The negotiations have been carried on by the representatives of the express companies and the Division of Public Service and Accounts.

The question of what prices the railroads are to pay for coal, whether the standard government price or a lower price, is also expected to be settled as soon as Mr. McAdoo can be consulted. This has been the subject of a controversy between John Skelton Williams, director of finance and purchases, who insisted on the railroads being allowed to make contracts at a lower price than other consumers, and the Fuel Administration, which has insisted on the regular price. The question was referred to President Wilson. Involved with it is also the question of car distribution. It is reported that the President has approved a plan by which mines furnishing railroad fuel coal will no longer receive preference in car supply, but that the cars will be distributed ratably to all mines and the Fuel Administration will regulate the distribution of the coal. It is expected that Mr. Williams' efforts to break the other government standard prices on raw materials will also be taken up with Mr. McAdoo and possibly with the President.

Rates to Be Increased

Increases in freight and passenger rates are also expected to be taken up by the director general shortly. It is understood that the preliminary work looking to increased rates is now being done by the Division of Traffic and that the amount of the increases to be proposed will depend to some extent upon the amount of the wage increases to be made.

The preliminary reports issued by the Interstate Commerce Commission of earnings and expenses for the first three months of the year show alarming decreases in operating income even without the effect of the wage increase, which is to be retroactive from January 1.

Standardization of passenger fares, and possibly to some extent of freight rates, is to play a considerable part in the move for higher rates. Rate clerks from roads in all parts of the country are at work in Washington on the compilation of a national mileage table, showing the distances between all points, which it is understood is to be made the basis for a mileage system of fares and will obviate to a large extent the necessity for rate clerks and complicated tariffs because fares will be based largely on mileage, although equalized to a certain extent between common points. The basic rate of fare has not yet been determined, although there have been reports that it would be a minimum of three cents a mile.

Although the complete reports of earnings and expenses have not yet been issued for any month of this year, it is becoming well understood that without large rate increases the Administration is facing a large deficit and the proposed rate increase when announced is expected to make the increases formerly asked by the railroad companies, which have aroused such protracted and bitter controversies, seem rather insignificant in contrast.

The director general is expected also to interest himself in the negotiations regarding the standard form of contract governing the compensation of the railroad companies, which have been conducted by committees representing the companies and the Administration. The conferences on this subject have been protracted and although it is understood that the two sides are gradually approaching an agreement it is said to be possible that the presence of the director general may serve to expedite matters.

Consolidated Ticket Office at Washington

The United States Railroad Administration's consolidated ticket office at Washington, which in some respects is a model for the centralized ticket offices to be established throughout the United States, was opened on Monday, May 6. The office is centrally located at the corner of Thirteenth and F streets and replaces nine offices formerly maintained by the individual railroads. The general plans for the Washington ticket office were worked out by a committee of passenger officers appointed by the Railroad Administration, consisting of H. F. Cary, general passenger agent of the Southern; J. P. Anderson, passenger traffic manager of the Pennsylvania, and W. B. Calloway, passenger traffic manager of the Baltimore & Ohio.

The Washington office consists of a long, rather narrow room with a broad ticket counter about 80 feet in length running nearly the full length. Behind the counter are two large ticket cases, each of which carries a full set of ticket forms which can be used to reach any point in the United States, Canada or Mexico and Cuba. Sixteen ticket sellers are on duty and each one is expected to be able to handle ticket sales to any point and to complete the entire transaction, including the selling of Pullman accommodations and making arrangements for the transfer of baggage.

A special feature, which is to be used also in other offices, is a new method of handling Pullman reservations. All Pullman diagrams are centralized at the ticket office in the Union Station and a private telephone system consisting of 22 direct lines has been installed between the ticket office and the station so that each ticket seller is able simply by lifting the receiver of his telephone to secure the attention of the diagram office, obtain the information desired and reserve space. The telephone calls do not pass through an exchange and the ticket clerk can talk to the Union Station office and fill out his ticket blanks more easily than he could look up a diagram in his own office. The fact that the ticket clerks sell both passage and Pullman tickets

avoids the necessity of passengers having to stand in line twice.

While a considerable saving in rentals was made by the discontinuance of the separate offices and the centralization in one office, the entire ticket selling force of the separate offices was taken over and in some cases salaries were increased. The office has been rather crowded thus far since it was opened, but it is expected that customers can be accommodated more rapidly as soon as the clerks become more accustomed to selling to all points. For example, the first ticket was sold by a man formerly in the Baltimore & Ohio office to an obscure point on the Southern Railway, while the second was sold by a Southern Railway man to a point in North Dakota. The clerks were naturally less familiar with the consolidated ticket stock than with the stocks they had been used to handling.

In the Washington office, as in each of the other consolidated ticket offices, a man is stationed to answer inquiries regarding freight transactions. While he is not equipped to quote rates or to issue bills of lading, he is expected to furnish general information desired by the public and if necessary to refer inquirers to the proper office of an individual road.

In the basement is a well equipped locker room for employees and here are also kept reserve ticket stocks, etc.

Tickets to Be Standardized

A ticket standardization committee appointed by the division of traffic of the Railroad Administration has been at work in Washington for the last week or so on plans for simplifying ticket contracts and ticket forms. It is probable that the work of the committee will also result in interchangeable tickets similar to that already adopted for use between Chicago and St. Louis, which will be good for passage over any route between the points named. The committee consists of O. P. McCarthy, formerly passenger traffic manager of the Baltimore & Ohio, chairman; C. A. Fox, secretary of the Central Passenger Association, secretary; J. D. Rehner, general passenger agent of the Florida East Coast, and J. V. Lanigan, assistant general passenger agent of the Illinois Central, representing the southeastern roads; W. J. Cannon, assistant general passenger agent of the Chicago, Milwaukee & St. Paul, and F. E. Batturs, general passenger agent of the Southern Pacific, representing the western roads, and W. L. Pratt, chairman of the New England Passenger Association, who, with Mr. McCarthy, represents the eastern roads.

Handling of Live Stock

The Car Service Section has issued a bulletin stating that it is advised by the Director of Inland Transportation, War Department, that it has been decided that all shipments of live stock made by that department shall be handled in strict accordance with the twenty-eight-hour law, and that attendants are directed not to sign release permitting confinement for a longer period without unloading for feed and rest in accordance with the law regulating the handling of live stock, except in the most extreme cases, when, due to unavoidable delays, it may be impracticable to unload within the twenty-eight-hour limit.

Weekly Financial Reports

All carriers subject to federal control are required by General Order No. 23 to render a weekly report of cash resources and requirements to the treasurer of the United States Railroad Administration, showing also estimated cash receipts and requirements during the remainder of the current month and the subsequent month.

GUATEMALA IMPORTED RAILWAY SUPPLIES to the value of $128,170 in 1917.—*Commerce Reports.*

Orders of the Western Regional Director

DURING THE PAST WEEK R. H. Aishton, regional director of western railroads, Chicago, has issued the following orders to the lines under his authority:

Execution of Contracts

In a circular dated April 30, the regional purchasing committee has supplemented its letter of April 24, in reference to the submission of contracts to it for approval, as follows:

Contracts recommended for approval should be executed by the railroad and forwarded in duplicate, one copy to be retained by this committee. Your action in executing contract before submitting it, indicates that you assume responsibility for its being the most advantageous contract that you can secure as a result of competitive bids.

Please see that all contracts submitted for approval are complete in every respect. In those cases where a contract is executed by the seller before submitting, it must be understood that it is not binding and should not be delivered until approved by this committee.

Passenger Cars and Freight Cars on Order

Circular No. 94 asks for the following information on passenger and freight cars that railroads have on order: Name of builders, shop, date of contract, purchaser, description of cars, number due on January 1, 1918; number delivered January 1 to March 31, number due April 1, deliveries scheduled.

Inspection of Materials, Locomotive and Car Construction

Circular No. 91 calls for an inventory of the facilities and forces as now organized upon the various railroads for material inspection and construction inspection. The circular reads as follows: Herewith find blank forms and a sample form which has been filled out for the A. B. & C. Railroad to illustrate the way in which this form should be made out, showing the present organization of your material inspection forces. In connection with this form, please note that if the foreman in charge acts as field inspector for more than 50 per cent of his time, he should be classed as field inspector only.

There are also attached separate blank sample forms which are to be filled out showing the various construction inspectors carried by the railroads, one form for locomotive inspectors and one for car inspectors. If more forms are required, the railroad will reproduce the necessary number. If the forms as made out do not exactly cover the conditions on certain railroads, it is desired that supplemental data be furnished to cover the full intent of the form.

Also advise to whom communications should be addressed regarding: (a) Materials—inspection and test; (b) locomotive building inspection; (c) car building inspection.

This report does not include tie inspectors. Roads having a separate organization for inspection of ties will continue it under direction of the regional purchasing committee

Selling or Reclaiming Scrap

Circular No. 92 reads as follows: On account of the shortage of iron and steel, the War Industries Board and the Council of National Defense call attention to the necessity for picking up and either selling or reclaiming every piece of scrap iron or steel, dismantled machinery, obsolete iron and steel material or machinery that can be found on each road.

The Railroad Administration directs that special attention be given this matter and all such scrap metals and material be disposed of to the best advantage as soon as possible. A thorough canvass of the entire situation should be

made, taking into consideration unused plants with obsolete machinery, or rail and fastenings laid in abandoned gravel pits, industry tracks, logging roads, etc., etc., which are no longer of use. Each road will please report to this office on or before May 31, what has been accomplished.

Employees' Magazines

Western railroads which publish employees' magazines have been requested to supply the regional director with copies of their last issues and the following information: 1 How frequently published; 2 Total expense of publication; 3 Revenue derived from advertising; 4 Net expense for publication; 5 Advantages expected to be obtained from publication.

Diversion or Reconsignment of Freight

In a communication dated May 4, the regional director says: The question has been raised on orders for diversion or reconsignment of freight traffic while in possession of rail carriers, whether the road receiving the diversion orders from the shipper or other party in interest, or the road in possession of the freight should determine whether the diversion order should be accepted and the diversion made; also with which road the financial responsibility lies in case of the acceptance of diversion order from an irresponsible party or for other reasons the acceptance and accomplishment of the diversion order results in the liability of one or more of the roads handling the freight.

It is held that the road receiving the order for diversion or reconsignment from the shipper or the party in interest shall determine whether that order shall be accepted and accomplished, and should any financial liability result from the acceptance and accomplishment of the order, then the road that received it from the shipper and determined that it should be accepted and accomplished will be financially responsible to its connections for any loss or liability that may result.

Tariffs Naming Intrastate Rates

In order to permit an intelligent consideration of the question of uniformity in state and interstate rates, western lines have been instructed to prepare an analysis in duplicate of freight tariffs published by them which contain rates, rules or charges applicable on intrastate traffic only. The purpose of this analysis is to have ready at the earliest possible moment a detailed statement of the tariff or tariff items which may have to be amended, cancelled or filed with the Interstate Commerce Commission, to eliminate conflicts, bring all rates to a new basis and have one rate and only one published for each service, and that rate applicable on all business, both state and interstate and filed with the Interstate Commerce Commission. The information asked for in this letter (dated April 30) is to be listted on two forms, one covering interstate tariffs naming intrastate rates and the other state tariffs not filed with the Interstate Commerce Commission.

Publication of Freight Tariffs

In Circular No. 93, the regional director gives the following instructions: The cost of compiling and printing freight tariffs in the United States is variously estimated from $5,000,000 to $8,000,000 per annum. An attempt will be made to reduce this cost by simplification and consolidation of tariff issues. For this purpose, you are asked to furnish in duplicate a statement of your tariff issues according to a form attached. One copy of this statement will be sent to Washington and the other copy will be retained here. It is understood that exact answers cannot be made to many of these questions, but the best possible estimate should be furnished and your report should show whether the figures are actual or estimated.

Among the questions asked in the form accompanying this circular are the number of freight tariffs and the number of supplements and amendments thereto published by each road in 1917; the cost of compiling, printing and distributing them; the total amount paid for freight tariffs (including amendments and supplements) issued by freight associations, bureaus or publishing agents; the proportion of space in all freight tariffs, amendments and supplements (issued by each road and in effect December 31, 1917), covering rates, rules, etc., applying locally between points on each road, and the proportion applying jointly with other lines; the proportion covering rates, rules, etc., on tariffs which have been competitive with other roads and which were a practical duplication of matter published by another road or by a publishing agent; and the proportion which were the same or substantially the same or exceptions to those printed in a classification or circular issued by a publishing agent.

Industrial and Agricultural Development Work

Circular No. 97, dated May 2, states that the staff of the director general has reached the following conclusions as to expenditures for industrial and agricultural development work:

1: Nothing should be expended in these days for industrial development. Our man power is too little for the industries already established other than those which relate to the immediate activities of the war.

2: Carriers may, to some extent, continue expenditures for agricultural development. In no case should expenditures for the year 1918 exceed those for 1917 and ordinarily they should be less.

3: It is felt that railroads in making these expenditures should get into close touch with the Agricultural Department (at Washington) and should permit that department to occupy what may be termed the scientific or special field of that work.

Conserving Supplies and Materials

The director of the division of Transportation has issued the following instructions dated May 6, which should be observed in connection with Circular No. R. P. C. 10:

"In view of the increasing difficulty in obtaining a sufficient amount of steel and iron products, it is more important now than ever that every effort be made to reclaim and make repairs to old material instead of using new, and under no circumstances must material be scrapped until

1. It is known positively that it cannot be satisfactorily repaired.
2. That the cost of repairs will be prohibitive.

"Each road will appoint a 'reclaim committee,' which will make a study of the proposition and put into effect the necessary methods to carry out the desired results and make recommendations for devices or apparatus that will best serve the purpose of conservation of all kinds of material."

Overtime Payments to Trackmen

Paragraph "G" under Section 2 of Circular No. 63 reads as follows: "Roads now paying, or under contract to pay, trackmen time and a half for Sunday and night work may continue this practice, and other roads in the same territory may adopt the same practice, if they so desire."

Statements have been made that some lines have not been observing these instructions. There should be no deviation from the rules as outlined in Circular 63 without definite approval from this office. Any railroad that was not paying time and a half for overtime for Sunday work to track labor when this circular was issued should not institute the practice without definite approval from this office.

Surety Bonds

In order to prevent any question as to whether surety bonds cover also the interests of the United States, it has been arranged to place a rider on all surety bonds issued to any railroad under Federal control to cover this point. Nine surety companies have been requested to arrange for its attachment to surety bonds.

Extensive Reductions in Western Passenger Service

Readjustments of Schedules Involving Elimination of Nearly 12,000,000 Train-Miles a Year

ADDITIONAL REDUCTIONS in passenger train service on western railroads amounting to 11,728,218 train-miles per year will become effective on June 1, or shortly thereafter. The changes will be made in conformance with a detailed report recently prepared by the passenger traffic committee of the western region, P. S. Eustis, chairman, and approved by the director general. Changes recommended by this committee will be substantially as outlined in the report as summarized below, although a few additional alterations of the proposed schedules may yet be made before June 1. It will be observed that no radical reductions in train service have been made. On the contrary, it has been the purpose of the committee to provide through service ample for the needs of the traveling public, although in doing so the schedules of individual lines have been disregarded and the service of all the lines involved has been considered as a whole. At the same time, it has been the aim of the committee to preserve on each railroad sufficient trains to serve local needs as well as the needs of individual communities for through service.

Four northbound trains between Chicago and St. Paul have been removed and two new trains added, making a net reduction in service of two trains. Southbound between the same points five trains have been taken off and two trains added, making a net reduction of three trains. The new schedules, therefore, will provide 19 northbound and 16 southbound trains daily between Chicago and St. Paul, compared with 21 northbound and 19 southbound under the old schedules.

Under this plan the Chicago & North Western will operate two day trains and three night trains between Chicago and St. Paul as compared with two day and four night trains under the present schedules. Southbound it will have two day trains and two night trains as compared with two day and three night trains under the present plan. The North Coast Limited will not run south of St. Paul. The Chicago, Burlington & Quincy, Pacific coast train leaving Chicago at 10:10 a. m. and the southbound coast train leaving St. Paul at 11:30 p. m. have been removed, while the southbound coast train leaving latter point at 8:30 a. m. will remain in service. Under the revised schedules the Burlington will have two night trains and one day train northbound and one night and two day trains southbound. This is equivalent to a net reduction of one train each way on the Burlington. All four of the Pacific coast trains on the Chicago, Milwaukee & St. Paul have been retained. The only trains discontinued between Chicago and St. Paul are the northbound train now leaving Chicago at 9:40 p. m. and the southbound train leaving St. Paul at 7:30 p. m. The only additional change in service between Chicago and the Twin Cities is the lengthening of the schedule of the Chicago Great Western train leaving Chicago at 8:30 p. m. to 13 hours.

Between Chicago and Omaha a net reduction of three trains each way will be made. Westbound the North Western trains leaving Chicago at 9:40 and 10:00 p. m. and the St. Paul train leaving there at 10:05 a. m. will be discontinued, while eastbound the North Western trains leaving Omaha at 8:35 and 10:10 p. m. and the St. Paul train leaving at 7:50 p. m. will be eliminated. The schedule of the Illinois Central train leaving Chicago at 5:30 p. m. will be lengthened to 15 hours. All of the trains removed are Pacific coast trains.

Between Chicago and Kansas City there will be a reduction of three trains each way. The Atchison, Topeka & Santa Fe trains leaving Chicago at 10:30 and 4:45 p. m. and leaving Kansas City at 8:30 a. m. and 6:15 a. m. have been eliminated. The 10:30 p. m. train westbound has also been discontinued between Kansas City and the coast, while the train leaving Kansas City at 8:30 a. m. for Chicago has been discontinued from the coast to Kansas City.

On the Rock Island the Pacific coast trains leaving Chicago at 9 a. m. and 8:05 p. m. will be discontinued between Chicago and Kansas City, but will continue to operate from there to Tucumcari, N. M. Eastbound, the Pacific coast trains arriving in Kansas City at 10:40 p. m. and 7:35 p. m. will no longer operate to Chicago.

On the El Paso & Southwestern one train in each direction will be removed between Tucumcari, N. M., and El Paso, Texas.

The Great Northern and the Northern Pacific will continue to operate the same number of trains between St. Paul and the coast. One train in each direction has been discontinued on the Los Angeles & Salt Lake between Salt Lake City, Utah, and Los Angeles, Cal. The Southern Pacific will discontinue the operation of its westbound train leaving Ogden, Utah, for San Francisco at 1:30 a. m., and its eastbound train leaving San Francisco for Ogden at 12:40 p. m. The time of its westbound train from New Orleans to Los Angeles, leaving the former city at 11:30 a. m., has been lengthened to 64 hours, while the schedule of the eastbound train between the same points, leaving Los Angeles at 8:30 a. m. has been similarly lengthened. One train in each direction has been discontinued between Los Angeles and El Paso.

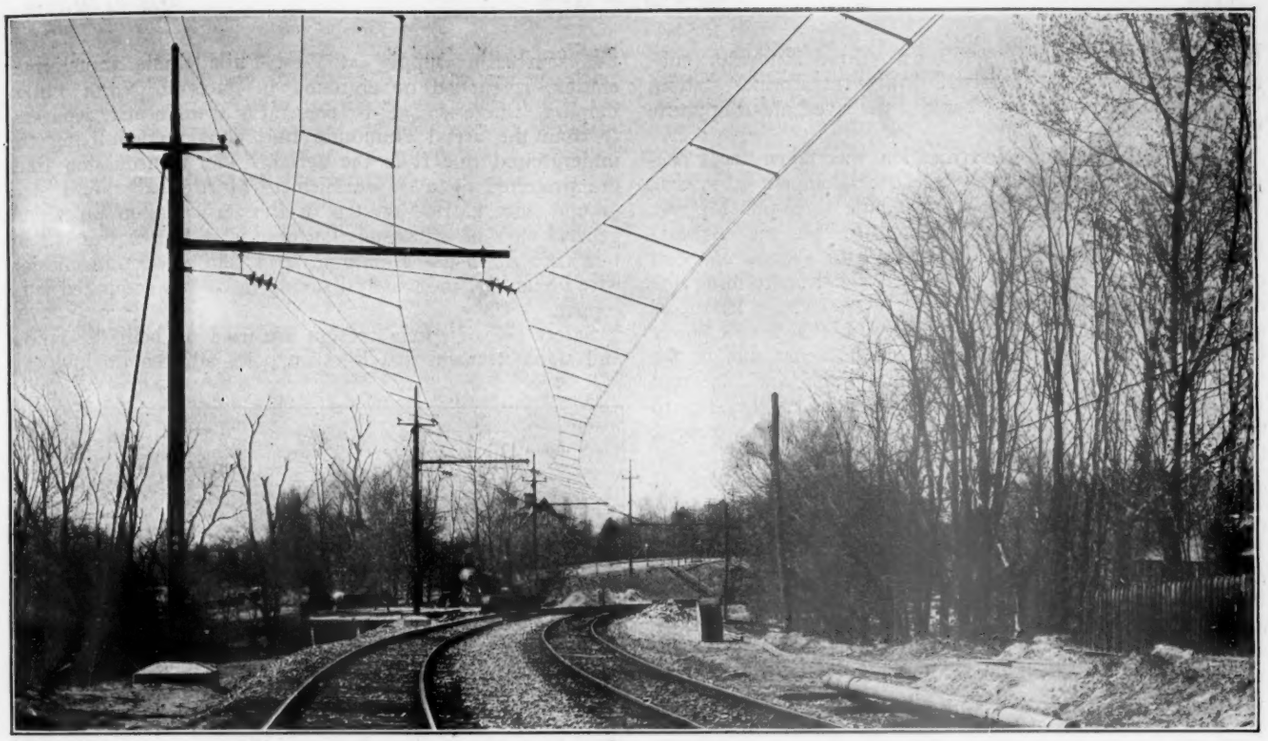
On the Union Pacific three westbound and three eastbound trains have been discontinued between Omaha and Ogden. In addition two trains in each direction have been consolidated.

The service between Portland and Seattle has been reduced by three trains in both directions. The schedules have been finally approved and will go into effect on May 14.

The committee is still studying the train service between St. Paul and Omaha, and it is not unlikely that one train will be removed between these points. It will also issue a supplementary report containing proposed changes in service between St. Louis and Kansas City and between St. Louis and Kansas City and Texas points. The readjustment of service outlined in this article involved a considerable number of changes in the times of departure and arrival which we have not attempted to cover. The following table shows the reductions in train-miles per year for the individual roads which will be affected by the new schedules:

PASSENGER TRAIN MILEAGE REDUCTIONS.

A. T. & S. F.		1,560,010
C. & N. W.		815,738
C. St. P. M. & O.		298,570
C. B. & Q.		573,780
C. M. & St. P.		1,012,116
C. R. I. & P.		973,820
E. P. & S. W. System		241,650
Great Northern		None
L. A. & S. L.		621,960
Northern Pacific		235,790
Southern Pacific		1,548,330
Union Pacific		2,383,450
Union Pacific (OSL)		178,850
Union Pacific (O-W)		.....
Portland-Seattle Lines		403,690
Summer Service Off:		
C. B. & Q.—Chicago-Colo.	442,552	
U. P.-Omaha-Colo.	249,252	880,464
C. R. I. & P.-Belleville-Colo.	188,660	
Total		11,728,218



Philadelphia—Chestnut Hill Electrification

Latest Improvements in Catenary Construction Used on This Branch of the Pennsylvania

THE CHESTNUT HILL electrification is an extension of the Philadelphia-Paoli electrification, connecting with it at a point near West Philadelphia, and extending over the main line to North Philadelphia and over the Chestnut Hill branch to Chestnut Hill. The distance from Broad Street to Chestnut Hill is twelve miles. The length of the new electrified Chestnut Hill line is 10 miles, 2.3 miles of which is four track and 7.7 miles double track.

There are at present in daily operation 21 trains, totaling 88 cars, in each direction. It is expected that this service

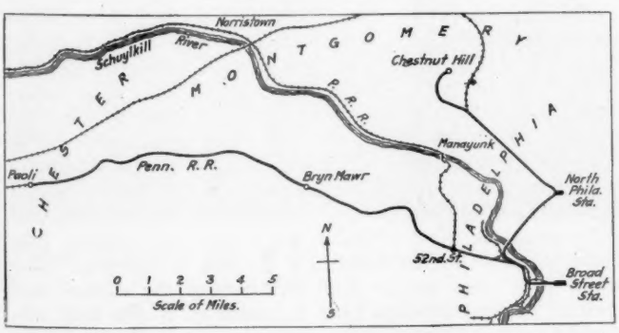


Fig. 1—Map Showing Location of Newly Electrified Section

will be increased when more normal traffic conditions permit. The electric equipment is designed to handle a service of 32 trains each way per day, the rush-hour service being eight-car trains on a five-minute interval. The running time of the steam trains eastbound from Broad Street to Chestnut Hill was 35 minutes, or a schedule speed of 20 miles per hour. The electric service is at present operating on former steam schedule, but when the next time table is issued this schedule will be reduced to 33 minutes. The westbound schedule being chiefly down grade is three minutes shorter than the eastbound.

The average grade between North Philadelphia and the junction with the Philadelphia-Paoli electrification is .38 and the maximum grade is 1.3 per cent. near the easterly approach to 36th Street tunnel. The difference in elevation between the junction of the Chestnut Hill branch with the main line at North Philadelphia and the end of the track at Chestnut Hill is 297 feet, or an average grade .84 per cent. The maximum grade on this branch is 2.5 per cent between Highland station and Chestnut Hill. A map of the Chestnut Hill branch and its connection with the Philadelphia-Paoli line are shown in Fig. 1.

Of the total of twelve miles of Chestnut Hill electrification, eight miles are on tangent and four miles on curved track. The heaviest curve at North Philadelphia is 11 deg. and is about .2 miles in length. The remaining curve track varies from 0 deg. 40 min. to 50 deg. 20 min., most of which is on rising grade.

There are 11 stations on the Chestnut Hill branch, spaced about one-half mile apart, except in one case, where the distance between stations is one and one-half miles.

Power System, Transmission and Distribution

Power for the Chestnut Hill electrification is furnished by the Philadelphia Electric Company. The power station is on the east bank of the Schuylkill river at Arsenal bridge. Three-phase power is generated at 13,200 volts, and is

transmitted over four 350,000 c.m. three conductor submarine cables to the Arsenal bridge transformer station, which is located on the west bank of the river, about opposite the power house.

Power for the Paoli electrification was taken from one-phase of the Philadelphia Electric Company's system. With the Chestnut Hill load added, the three-phase power (somewhat unbalanced) is transmitted to the Arsenal bridge transformer station, in which two groups of Scott connected transformers are employed for transforming the supply into two-phase 44,000-volt power. Phase balancers are installed in the Philadelphia Electric Company's power house to correct the unbalancing which occurs due to the variation in load requirements of the Paoli and Chestnut Hill systems. From the high tension sides of the step-up transformers there are four 44,000-volt single-phase feeders, two for Paoli and two for the Chestnut Hill electrification. The middle point of the high tension winding on each of the transformers is connected to ground through a resistance, thus reducing the voltage between any wire and ground to 22,000 volts. From the Arsenal bridge transformer station the four single-phase transmission lines run to the West Philadelphia transformer station, where connections are made to each line. From the West Philadelphia transformer station they continue west, two running to the Bryn Mawr and Paoli transformer stations of the Paoli electrification, and two to the North Philadelphia and Allen Lane transformer stations of the Chestnut Hill electrification.

For the Chestnut Hill supply, transmission lines are of

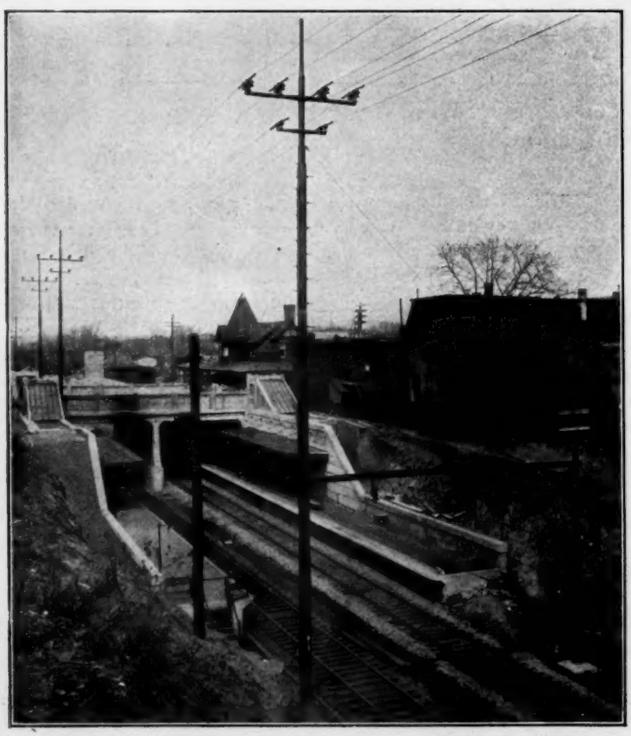


Fig. 2—Transmission Pole Carrying 44,000 Volt Line

stranded aluminum steel reinforced wires, having a conductivity equivalent to 2/0 copper, carried on cross arms on separate transmission poles of sufficient height to clear all highway bridges and crossings. A signal power line of stranded aluminum steel reinforced wires, having a conductivity equivalent to 1/0 copper, is carried from North Philadelphia to Chestnut Hill on cross arms placed on the transmission poles below the power transmission cross arms. The signal power line of insulated copper wire, from the source of supply at West Philadelphia transformer station, is carried underground in ducts to North Philadelphia, where a one to one ratio transformer separates it from the aerial aluminum line, thus sectionalizing the underground line from the aerial. The transmission lines are protected by a 3/8-in. Siemens-Martin galvanized steel ground wire carried on top of the transmission poles. A general view of a transmission pole is shown in Fig. 2. It was decided to use aluminum steel reinforced transmission wire because of the material saving in cost as compared with copper.

Safety ties of special design are used on both the power and signal transmission lines on poles adjacent to highway

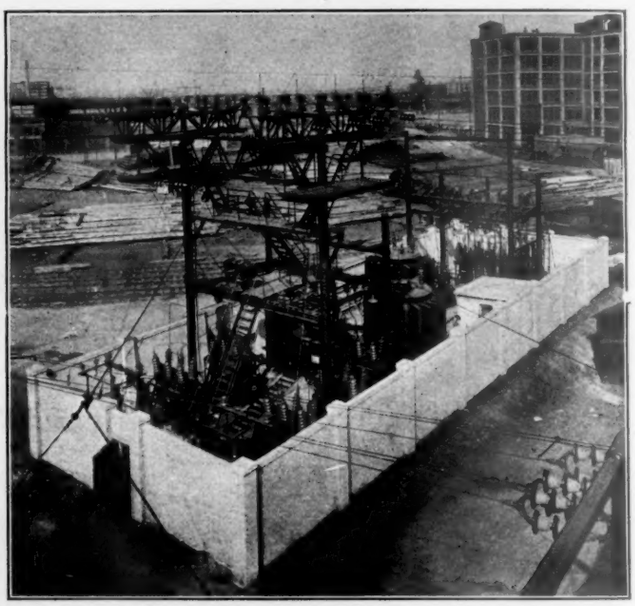


Fig. 3—North Philadelphia Transformer Station

crossings and station platforms in order to insure against burning off and falling of wires in case of insulator failure. These safety ties consist of flat galvanized iron plates, 3½ in. wide, placed under and clamped to the transmission wire and to yokes on the insulators. The plates extend about 18 in. beyond the insulators. Two insulators are used at highway crossings and on sharp curves.

The equipment in the West Philadelphia transformer station originally consisted of two 2,000-kva oil insulated water cooled step-down transformers. In order to take care of the Chestnut Hill electrification, two 3,000-kva oil insulated water cooled transformers were installed in this transformer station and connected to the Paoli phase. The 2,000-kva transformers which they replaced were connected to the two Chestnut Hill transmission lines and trolleys. At the North Philadelphia transformer station, located 4.4 miles from the West Philadelphia transformer station, provision is made for sectionalizing the two transmission lines where they cross on the steel structure of the station, and each of the transmission lines is connected to the high tension bus through an oil circuit breaker. From this point the two transmission lines continue on for a distance of 5.3 miles to the Allen Lane transformer station, where they dead-end, and are connected through oil circuit breakers to the high tension bus.

Both the North Philadelphia and Allen Lane transformer stations are of the outdoor type and each is equipped with two 3,000-kva single phase radiator type self-cooled oil insulated transformers, stepping the voltage down from 44,000 to 11,000 volts. All of the transformer station

apparatus is designed for outdoor service. The terminals on all transformers and oil circuit breakers are equipped with high voltage porcelain insulators, and all of the live parts and operating mechanisms are enclosed in weatherproof cases. The transformer station equipment is protected from lightning discharges and surges by means of electrolytic lightning arresters on the high tension and trolley feeders. In each of the transformer stations there is a small brick or concrete building in which the relays for automatic circuit breaker tripping and the magnet or relay switches for closing the oil circuit breakers are located. These buildings also contain a filter press for cleaning and drying the oil in the transformers and oil circuit breakers.

In the case of the Allen Lane transformer station the building also contains a small storage battery and motor generator set for charging the battery, which is used for automatic circuit breaker tripping. Power for this purpose in the case of the North Philadelphia transformer station is obtained from a storage battery in GD Signal Tower. Each transformer station is equipped with a large tank of sufficient capacity to hold the oil from one transformer, and, in addition to this, small tanks are provided into which the oil from circuit breakers is pumped for cleaning and drying. All oil circuit breakers are mounted on angle iron frame work and are equipped with a tank lifter for raising and lowering the tanks to permit easy inspection and repairs to

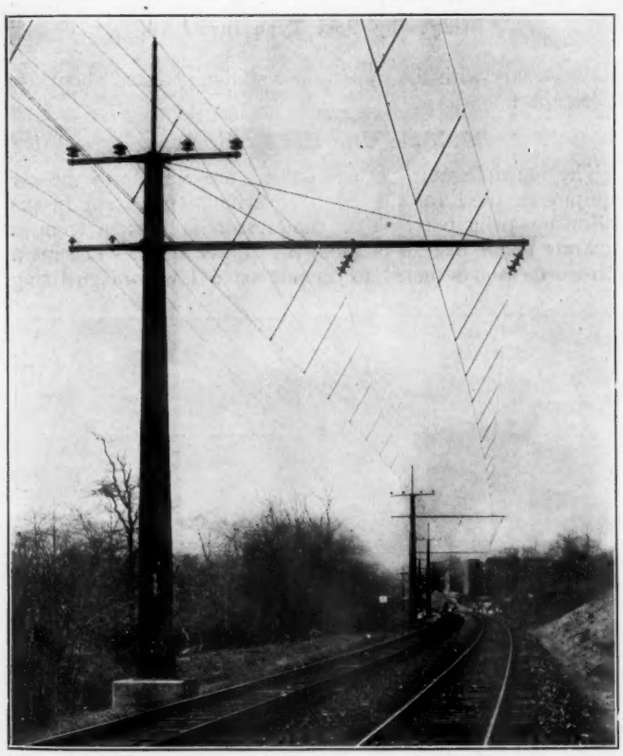


Fig. 4—Structural Pole Without Guys for Two Track Construction

circuit breakers. Transformers are equipped with a thermostat alarm which operates in case of excessive heating.

The North Philadelphia transformer station is controlled from GD signal tower, which is located a short distance away, and the Allen Lane transformer station is controlled from CW signal tower located near the transformer station. Lead covered control cables, carrying the necessary conductors, are run from the transformer stations to the towers in trunking underground. Power for closing circuit breakers and for auxiliary purposes is obtained from two small step-down transformers in each transformer station. One of these transformers is connected to the 44,000-volt bus and the other to the 11,000-volt bus. The voltage used for remote control closing and tripping of circuit breakers is 440-volt A.C., while 60-volt D.C. current is used for automatic tripping by relays. A view of the North Philadelphia transformer station is shown in Fig. 3.

The catenary system is carried on bridges spaced about 300 ft. apart. Catenary construction consists of a steel messenger or supporting wire, secondary messenger or auxiliary trolley and a contact trolley. The secondary messenger and contact trolley are clamped together with bronze

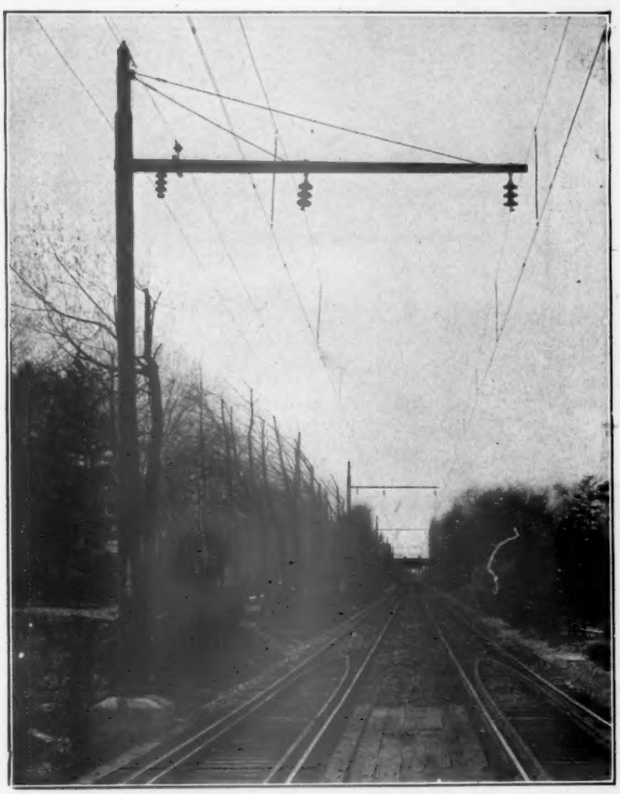


Fig. 5—Extra Heavy Tubular Pole Without Guys for Two Track Construction

clamps, spaced 15 ft. apart, and both are supported from the messenger by flat steel galvanized hangers every 30 ft. on tangent track, and 15 ft. on curved track. The type of catenary hanger is the same as that used on the Philadelphia-Paoli electrification.

The catenary is anchored approximately every mile on either overhead highway bridges or signal bridges designed to support the catenary over all tracks on either side of the bridge in case of a break in the catenary system on the opposite side. Catenary supporting bridges are of several types, designed to fit different conditions and locations. Wherever possible tubular pole construction with guys is used, shown in the illustration at the beginning of this article. This type of construction is used exclusively for supporting the catenary over the two tracks on the branch. Structural poles and extra heavy tubular poles, bracket type construction, without guys, as shown in Figs. 4 and 5, are used over the two track construction on the branch where space will not permit the use of guys. Other types of bridges are shown in Figs. 6 and 7.

The messenger wire is of ½-in. extra high strength seven wire steel strand galvanized, having a breaking strength of 27,000 lb. The secondary messenger is of 2/0 grooved

copper wire. The contact trolley is of 3/0 grooved copper alloy (phono-electric) wire. The cross catenary consists of a messenger wire of ¾-in. extra high strength 19 wire steel strand galvanized with a body strand of ½-in. diameter wire of the same material.

The catenary system is insulated from supporting bridges by three shell suspension type Locke insulators, as shown in Figs. 4 and 5. The catenary system is insulated from the overhead highway bridges by Ohio Brass post type insulators, as shown in Fig. 8.

The rails of the main line tracks are double bonded at each joint with two pin type expanded terminal bonds of No. 1/0 B. & S. gage, each bond consisting of 37 strands

Fig. 6—Tubular Pole Type of Bridge for Use Over Four Tracks

of soft drawn copper wire. The rails carrying the propulsion current return are sectionalized at each signal block; the propulsion current flowing through impedance bonds which are connected around these points. These impedance bonds are designed to allow the flow of propulsion current

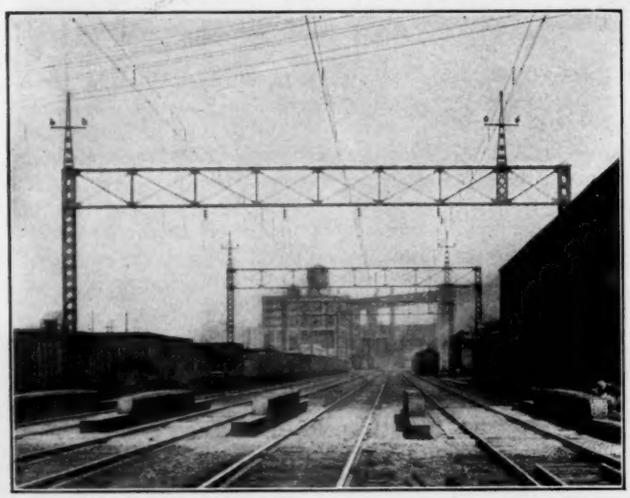


Fig. 7—Structural Bridge for Use Over Four Tracks

and to sectionalize track against the flow of the 60 cycle signal current. A view of the bond is shown in Fig. 9.

Telephone and Telegraph Lines

The telephone and telegraph lines of the railroad are carried underground in ducts along the main line, and underground in trunking on the Chestnut Hill branch. These lines parallel the tracks at an average distance of 20 feet. Recent tests which have been made demonstrate the fact that booster transformers in the track circuits are

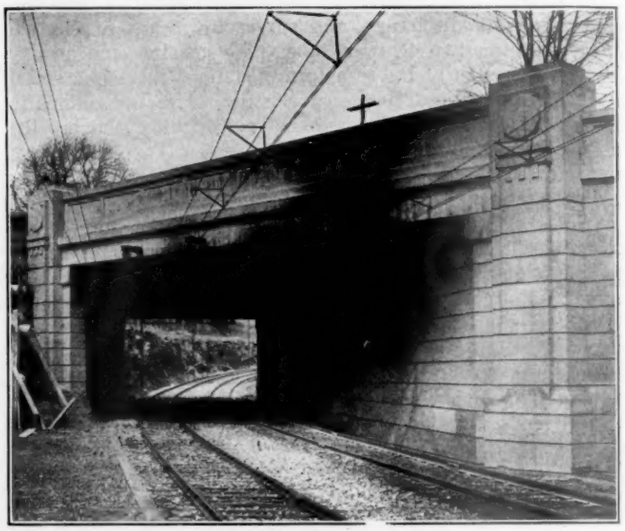


Fig. 8—Catenary Is Insulated from Overhead Highway Bridges by Post Type Insulators

not necessary with the transformer stations located about five miles apart.

Multiple Unit Car Equipment

The multiple unit car equipments are similar to the car equipments used for the Paoli electrification, except in the following principals: The compressor is driven from a separate motor instead of from the blower shaft. The main transformer is designed to operate on a lower magnetizing

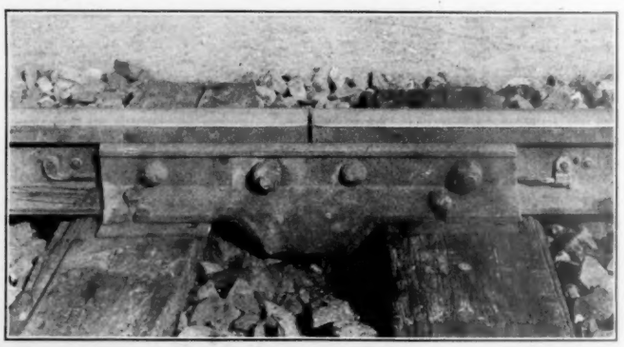


Fig. 9—Railroad Joint Showing Type of Bond Used. Note That Only a Small Amount of Copper Is Exposed

current and the insulation improved. Preventative coils are used in connection with switch groups instead of resistances, resulting in a reduced power consumption. A low voltage relay is provided, making it possible to operate cars with 1,000 volt greater variation of trolley potential. Increased illumination is provided in the cars.

Car inspection and repairs will be conducted in the car inspection building located in Paoli yard, where the inspection and repairs for the equipments of the Paoli line is also done. The multiple unit cars which are used on both the Paoli and Chestnut Hill lines are interchangeable for either line, and the repairs and maintenance will be handled in the one inspection building. The maintenance of the Chestnut Hill line equipment will be handled by the same main-

tenance force as formerly handled the maintenance of the Paoli line, its headquarters being at West Philadelphia.

Engineering and Construction

The design and construction was conducted by Gibbs & Hill, consulting electrical engineers for the Pennsylvania Railroad, in the same manner as the Philadelphia-Paoli installation. The multiple unit car equipments were installed by the railroad at the Altoona shops. All signal equipment and the necessary work in connection with telephone and telegraph lines was done under the direction of the railroad signal and telegraph departments.

Following is a list of the manufacturing concerns which furnish the principal materials for the equipment: Motor car equipments, transformer station equipment, Westinghouse Electric & Manufacturing Company; structural poles and signal bridges, Lackawanna Bridge Company; miscellaneous structural material, consisting of highway bridge supports, substation structural material, protection screens, Steward & Stevens Iron Works and Belmont Iron Works; tubular poles, National Tube Company; steel messenger, cross span and ground wire, J. A. Roebling's Sons Company; aluminum transmission wire and fittings, Aluminum Company of America; contact trolley wire, Bridgeport Brass Company; secondary messenger wire, Waclarke Wire Company; bonds, American Steel Wire Company, Electric Service Supplies Company, Ohio Brass Company; insulators, Locke Insulator Manufacturing Company, Ohio Brass Company; guy rods, Oliver Iron & Steel Company; steel castings, Atlantic Steel Castings Company; malleable iron castings, Eastern Malleable Iron Company; catenary fittings, bolts, nuts, hanger rods, pull-off rods, etc., West Philadelphia Shops, Pennsylvania Railroad Company, American Iron & Steel Company; sockets and turnbuckles, Thomas Laughlin & Co., J. A. Roebling's Sons Company; and block and automatic signal equipment, Union Switch & Signal Company.

Annual Government Signal Bulletin

THE LENGTH OF RAILROAD in the United States, January 1, 1918, on which the block system was in use, was 98,954 miles, as compared with 97,927 miles on January 1, 1917. These are the totals after deducting duplications, as shown in the annual bulletin which has just been issued by the Interstate Commerce Commission. These duplications, representing sections of road used jointly by two companies, and reported by both, aggregate no less than 577 miles. The increase in automatic block signal mileage is 2,242 miles and the decrease in non-automatic block signalling is 1,215 miles, making a net increase of 1,027 miles of road for the year. The commission's bulletin, making additions and deductions without eliminating the joint mileage, makes a net increase of 1,123.8 miles.

The totals for five years are shown below:

Miles of Road on Which the Block System Is In Use.

	Jan. 1, 1918	Jan. 1, 1917	Jan. 1, 1916	Jan. 1, 1915	Jan. 1, 1914
Automatic	34,799	32,557	30,714	29,600	26,570
Manual	64,155	65,370	65,567	66,679	60,167
Total	98,954	97,927	96,281	96,279	86,737

There is a large mileage of road in the United States used exclusively for freight traffic, on which block signals are in service; some of these roads include such mileage in their statements and some do not. Four roads, the Baltimore & Ohio, the Pennsylvania, the Southern and the Wabash, report considerable lengths of automatic signals in manual block signal territory, not included in the tabular statements. These, presumably, are isolated signals, one in a place, controlled by one or more track circuits, and used for protecting trains at stations, etc.

The principal increases and decreases shown in the bulletin, as compared with January 1, 1917, are as follows:

Names of railroads.	Increase.		Decrease, nonautomatic.
	Automatic.	Nonautomatic.	
Atchison, Topeka & Santa Fe System	40.0	39.7	
Baltimore & Ohio System	77.7		143.5
Central New York Southern [1]		34.7	
Central of Georgia	134.6		19.4
Chicago & North Western	179.4		176.9
Chicago, Burlington & Quincy	257.3		205.2
Chicago Great Western	35.2		
Chicago, Milwaukee & St. Paul	263.8		171.1
Erie		34.0	
Illinois Central	267.8		
Los Angeles & Salt Lake	151.8	44.2	
Louisville & Nashville	72.0		49.7
Missouri Pacific	73.4		222.4
Monongahela	33.6		
Norfolk & Western	61.3		62.7
Northern Pacific	215.5	113.0	
Philadelphia & Reading	35.1		37.1
Richmond, Fredericksburg & Potomac	56.1		56.1
Southern	57.1		230.6
Southern Pacific (Pacific System)	14.6	213.8	
Galveston, Harrisburg & San Antonio			76.5
Houston & Texas Central	33.4		
Toledo & Indiana [1]		52.0	
Union Pacific	73.3		
Oregon Short Line	54.7		
Union Traction Co. of Indiana	26.3		
Washington Southern	26.5		26.5

[1] Roads which have not heretofore reported block-signal mileage.

Table No. 2 in the bulletin, showing kinds of automatic signals in use, gives the miles of road on which electric motor semaphores are used, as 31,702 (50,014 miles of track) an increase during the year of 3,169 miles of track. Other kinds of signals show slight changes, except that the column of "Not Classified" shows an increase of 169 miles of road (177 miles of track). This column includes light signals and miscellaneous designs used by trolley roads; but the principal increase is that shown by the Chicago, Milwaukee & St. Paul, 177 miles, this item covering the three-position light signals introduced on that road in connection with the introduction of electric traction on the line over the Rocky mountains. This road also shows a considerable increase in mileage of semaphores.

The length of railroad on which the Morse telegraph is used for the transmission of train orders is 142,119 miles, a decrease during the year of 7,337 miles; while the length of road on which the telephone is used for this purpose, 110,404 miles is 7,011 miles greater than the year before. The aggregate length of the roads reporting in regard to telegraph and telephones, is 244,356 miles.

BRITISH RAILWAYS AND THE PALESTINE CAMPAIGN.—A British official war film, produced under the direction of the Ministry of Information—"With the Forces in Palestine"—throws an interesting sidelight on the extent to which the campaign in this theatre of war has been aided by railways and other forms of mechanical transport. Roadway has already been constructed over 140 miles of desert, by British, Egyptian and Indian labor. The line is standard gage, and the sections shown on the film have involved practically no work in the way of excavation or embanking, thanks to the level nature of the country. As fast as the rails are placed in position, a construction train follows, the vehicle being only a few yards distant from railhead. One of these trains, as depicted on the film, was made up of Egyptian State Railway flat cars hauled by a standard London & Southwestern Railway 0-6-0 freight engine, an unusual combination which visualizes the way in which English railway companies have sent rolling stock to the various fronts.

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The Problem of the Short Line Railroads

A Discussion of the Intent of the Legislation Regarding Their Disposition and Operation During Federal Control

By Sanford H. E. Freund

Assistant General Counsel, Great Northern, St. Paul, Minn.

THERE ARE ABOUT 800 short line railroads, so-called, in the United States. There are strong roads and weak roads; roads which form valuable links between Class I roads; and roads for whose building or existence there is little excuse. There are some which are substantially plant facilities, and some which, in addition to bringing out the products of an industry, serve a developing community.

Should some or all of these roads be kept in federal control? And if not, who, pending final disposition, is responsible for their operation and how shall their operation be conducted and co-ordinated with the operations of roads under federal control after these have been relinquished? The first consideration for determining the answer to these questions is to be found in the purpose of the President in taking possession and assuming control of the railway lines in the United States.

The act of August 29, 1916, provided "the President in time of war is empowered . . . to take possession and assume control of any system or systems of transportation, or any part thereof and to utilize the same . . . for the transfer or transportation of troops, war material and equipment or for such other purposes connected with the emergency as may be needful or desirable." Acting in pursuance of the power thereby granted the President by proclamation on December 26, states: *"I . . . do hereby . . . take possession and assume control* at 12 o'clock noon on the 28th day of December, 1917, *of each and every system of transportation and the appurtenances thereof located wholly or in part within the boundaries of the continental U. S.* and consisting of railroads and owned and controlled systems of coastwise and inland transportation engaged in general transportation, whether operated by steam or electric power, including also terminals, terminal companies and terminal associations, sleeping and parlor cars, private cars and private car lines, elevators, warehouses, telegraph and telephone lines and all other equipment and appurtenances, commonly used upon or operated as a part of such rail or combined rail-and-water systems of transportation; . . ."

He then directs that the possession and control, operation and utilization of such transportation systems shall be exercised by and through William G. McAdoo.

He continues, "by subsequent order and proclamation, possession, control and operation in whole or in part may also be relinquished to the owners thereof of any part of the railroad systems or rail and water systems, possession and control of which are hereby assumed." The proclamation further states "From and after 12 o'clock on said 28th day of December, 1917, *all transportation systems included in this order and proclamation shall conclusively be deemed within the possession and control of said director without further act or notice.*"

A statement of the President accompanied the proclamation. In this statement the President says, "This is a war of resources no less than of men, perhaps even more than of men, and it is necessary for the complete mobilization of our resources that the transportation systems of the country should be organized and employed under a single authority and a simplified method of co-ordination which have not proved possible under private management and control . . . The government itself will thereby gain an immense increase of efficiency in the conduct of the war and of the innumerable activities upon which its successful conduct depends.

"The public interest must be first served and, in addition, the financial interests of the government and the financial interests of the railways must be brought under a common direction."

In the address delivered at a joint session of Congress, January 4, 1918, the President says, "Transportation supplies all the arteries of mobilization. Unless it be under a single and unified direction, the whole progress of the nation's action is embarrassed. . . .

"It had become unmistakably plain that only under government administration can the entire equipment of the several systems of transportation be fully and unreservedly thrown into a common service without discrimination against particular properties. . . .

"It is necessary that the transportation of troops and of war materials, of food and of fuel and of everything that is necessary for the full mobilization of the energies and resources of the country, should be first considered. . . .

"Our first duty is of course to conserve our common interest and common safety and make certain that nothing stands in the way of the prosecution of the great war for liberty and justice, but it is also an obligation of public conscience and public honor that the private interests we disturb, should be kept safe from unjust injury, and it is of the utmost consequence to the government itself that all great financial operations should be stabilized and co-ordinated with the financial operations of the government. No borrowings should run athwart the federal treasury, and no fundamental industrial values should anywhere be unnecessarily impaired."

Extensive quotation has been made from the proclamation, statement and address of the President. Taking possession and assuming control of the railway lines of the United States, though done by legislative authority, was primarily an act of executive discretion, and as the problem to be considered is one which involves elements of fairness, of justice and economic expediency as well as of operating efficiency, the purpose of the government must be looked for in the words of the President acting as its spokesman, as well as in the letter of the law.

Further, by Section 9 of the Act of March 21, 1918, it is expressly provided that the act of August 29, 1916, shall remain in force and effect except as expressly restricted by the act of March 21, 1918, and that the President shall have such other and further powers as are necessary and appropriate to give effect to the powers conferred in both acts. The act of March 21, 1918, thus adopts and confirms what has been done.

The quotations above made seem to establish conclusively:

First, that the short line railroads are in the possession and control of the federal government unless relinquished. The President took possession and assumed control of each and every system of transportation and appurtenances there-

of located wholly or in part within the boundaries of the United States and consisting of railroads, etc. This is comprehensive enough to include the short line railroads; and they are not covered by the only exception to wit: street electric passenger railways, including interurbans. The President himself states that all transportation systems included in his order and proclamation "shall conclusively be deemed within the possession and control of the said director without further act or notice."

Second: The purposes for which the control was assumed were:

(A) To use the transportation facilities of the country in the most efficient manner by having a unified control.

(B) To provide for the large financial requirements of the railroads without embarrassing the government in its financial operations and without putting too great a burden on the railroads by making them borrow in competition with the government.

(C) To protect the interests of the owners of the railroads in this emergency.

Has Congress in the Act of March 21, 1918, evidenced any different intentions? Or is there anything in that act which affects these conclusions?

In the first paragraph of the act it is stated, "The President having in time of war taken over the possession, use, control and operation (called herein federal control) of certain railroads and systems of transportation (called herein carriers), is hereby authorized to agree with and guarantee to any such carrier making operating returns to the Interstate Commerce Commission," etc. The language is different from that of the proclamation of the President but it does not exclude any of the railroads or systems of transportation taken by the President unless they do not fall within the definition of a "carrier making operating returns to the Interstate Commerce Commission."

Another pertinent paragraph of section one reads as follows: "That every railroad not owned, controlled, or operated by another carrier company, and which has heretofore competed for traffic with a railroad or railroads of which the President has taken the possession, use and control, or which connects with such railroads and is engaged as a common carrier in general transportation, shall be held and considered as within "Federal control," as herein defined, and necessary for the prosecution of the war, and shall be entitled to the benefit of all the provisions of this act: *Provided, however,* That nothing in this paragraph shall be construed as including any street or interurban electric railway which has as its principal source of operating revenue urban, suburban, or interurban passenger traffic, or sale of power, heat, and light, or both."

Section 9 of the act provides *inter alia,* the provisions of this act shall also apply to any carriers to which federal control may be hereafter extended.

In Section 14 it is provided "That the President may, prior to July first, nineteen hundred and eighteen, relinquish control of all or any part of any railroad or system of transportation, further federal control of which the President shall deem not needful or desirable; and the President may at any time during the period of federal control agree with the owners thereof to relinquish all or any part of any railroad or system of transportation. The President may relinquish all railroads and systems of transportation under federal control at any time he shall deem such action needful or desirable. No right to compensation shall accrue to such owners from and after the date of relinquishment for the property so relinquished."

From the foregoing it would seem that all of the short lines are within federal control; that prior to July 1, 1918, the President may relinquish control of any of them by his own act; or at any time before that, or thereafter, may relinquish control by agreement with the owners. Under Section 9 the President can at any time resume control of a road that has been relinquished.

Though the proclamation of the President and the act of March 21, 1918, make it plain that control of the short lines was assumed, and though there has been no direct expression of opinion that they are not within federal control, nevertheless some doubt has been expressed as to responsibility for their operation at the present time. If it is correct to say that they are and remain in federal control unless relinquished, then the responsibility for their operation since December 28, 1917, is upon the United States Railroad Administration, and settlement must be made under the provisions of Sections 2 and 3 of the act of March 21, 1918.

Coming to the question of the disposition of the short line railroads, the determining criteria for retaining or relinquishing any road, should be (a) whether the short line railroad in question is needful in the mobilization of the transportation facilities of the country to the highest degree of efficiency; (b) whether a road so needed for that purpose could properly be operated and financed during the period of federal control of the railroad systems of the country without being included therein; (c) whether incommensurate hardship would be done the owners by relinquishing the road.

Applying these criteria the director general could at once release that class of road for whose existence there never has been any genuine reason or need, which is a financial cripple and which but for the intervention of federal control would have been sold, abandoned or scrapped.

The director general could also release the short line road which is essentially a plant facility, a road which the industry has maintained for its own benefit and is capable of and necessarily will maintain, in order to market its product. Such a road may be deemed neither needful nor desirable in a unified national transportation system. But the short line road which in addition to being a plant facility does general transportation from a fair sized community or through a country which is developing, may well be considered a proper part of a unified comprehensive transportation system.

The short line railroad which is in competition with the larger systems would seem to be covered by the paragraph quoted above from Section 1 of the act and held to be within federal control and *prima facie* necessary for the prosecution of the war; though like all other roads subject to relinquishment.

The argument on the one hand, of a short line railroad that needs financial assistance, of the hardship upon it of not being taken into federal control, or the argument, on the other hand, of the short line railroad that has been successful, that it does not need federal assistance, and prefer to be outside of federal control, is not conclusive in either case.

If a short line is a necessary part of a comprehensive transportation system and thereby may be deemed necessary for the prosecution of the war it should be retained even though it might need financial assistance. It should not be abandoned to finance itself amid the difficulties that exist for private financing today. But though the President specifically stated that it was intended that no hardship should be done to the owners of railroads by the taking of federal control, it was not intended, on the other hand, that federal control should be used to bolster a useless road.

On the other hand there is no reason because a road has been successful and its owners would prefer to keep it in their own control that it should be left out of the comprehensive national transportation system. The primary object now is the national needs, and if the mobilization of the transportation facilities of the country under unified control is essential, it should cover short lines as well, and

the preference of such lines should not be considered as against the national purpose.

Two other classes of short line railroads require consideration from another point of view: (a) the railroad in the course of construction but not completed and in operation on December 28, 1917, and (b) the road already in financial difficulty, either being in receivership or burdened with debts which it is unable to pay, and which in ordinary times would cause receivership, foreclosure or other legal proceedings.

The road which is not completed and in operation on December 28, 1917, can be taken under federal control under the provisions of Section 9 of the act of March 21, 1918. When such road had been taken, agreement might be made with it (though the case is not specifically covered) under that paragraph of Section 1 covering exceptional cases, which provides that "The President may make with the carrier such agreement for such amount as just compensation as under the circumstances of the particular case he shall find just," or payment might be made for use under Section 2. The provision in Section 9 conferring upon the President such other and further powers as are necessary or appropriate to give effect to the powers conferred, gives ample scope to care for exceptional cases.

If the conclusions previously stated are correct, that the President's proclamation covered each and every railroad, then the road in receivership was taken over, along with the others. The proclamation states that the director general of railroads may perform the duties imposed upon him so long and to such extent as he shall determine, through (among others) receivers. In the proclamation it is further stated "Except with the prior written assent of said director no attachment by mesne process or on execution shall be levied on or against any of the property used by any of said transportation systems in the conduct of their business as common carriers; but suits may be brought by and against such carriers and judgments rendered as hitherto until and except so far as said director may by general or special orders otherwise determine."

Section 10 of the Act of March 21, 1918, provides, "That carriers while under federal control shall be subject to all laws and liabilities as common carriers whether arising under state or federal laws or at common law, except insofar as may be inconsistent with the provisions of this act or any other act applicable to such federal control or with any order of the President. Actions at law or suits in equity may be brought against such carriers and judgments rendered as now provided by law; . . . But no process, mesne or final, shall be levied against any property under such federal control."

Though the receivership would continue, the court under the provisions of Section 10 would give attention to the orders of the director general made pursuant to the act, it being the intention of the act that so far as the operation of railroad properties are concerned its provisions shall be paramount to other laws or law. In any event, no taking of property on execution and no foreclosure or sale of property would be directed.

Likewise, in the case of the road burdened with debt, but not in receivership, the creditors could bring their actions at law or suits in equity, but when judgment had been obtained no process would be levied against any of the property. Consequently, the use and operation of the property under federal control would not be affected or hampered. This, of course, interferes with the rights of creditors and is particularly an interference with what has been ordinarily considered the most valuable right of a bondholder. But there is no provision in the constitution imposing upon Congress the limitation placed upon the state to "pass no law which shall impair the obligation of contracts." Ultimately, the rights of creditors are not lost; the exercise of some of them is temporarily postponed. The judgment remains in effect, and on the termination of the period of federal control can be enforced.

Further, debts incurred before December 28, 1917, are debts of the corporation. Whether or pot payment could be obtained from the corporation during federal control need not now be decided. Though it would seem that if the corporation has ample funds and the operation of the properties under federal control would not be interfered with, there would be no reason why corporate funds should not respond to corporate debts previously incurred.

Can all the short line railroads be released and at the same time such arrangement made that a comprehensive national transportation system will be operated in which the short line railroads will do their part? The matters of chief concern to the short line railroads are these:

(a) Financing;
(b) Divisions of through rates;
(c) Car supply;
(d) Material;
(e) Labor.

Fundamentally, there would be no difficulty or impossibility for the government to enter into agreements with the short line railroads which would adequately protect the short line railroads.

The ultimate question is whether the existence of the particular short line railroad is needful or desirable for the national purpose. If it is, the government must care for it either by retaining it under federal control, or by making arrangements with it that will protect it if left outside of federal control. If a large number of the short lines are to be relinquished, it would almost seem that it were better to relinquish all and work out a standard agreement between the short lines and the railroads operated under federal control. Whether operating the short line railroads or leaving them in the hands of their owners to be operated under such standard agreement would be better for the national purpose, is a question beyond the scope of this article.

AUSTRIA-HUNGARY TO MANUFACTURE LOCOMOTIVES.—The Hungarian State Railways intend to establish a new locomotive factory. They already possess one at Budapest, says the Neue Freie Presse, capable of turning out some 300 locomotives a year. As the Hungarian State owns suitable ironworks, a large new factory would add considerably to its output and its power to compete in exporting, especially to the Balkans. The question has also been raised whether the Austrian State should not undertake the manufacture of rolling stock. The Austrian locomotive factories produced over 400 locomotives per annum in time of peace, 366 in 1916, and 328 in 1917. The Skoda Works intend to establish a locomotive plant.—*Commerce Reports.*

HIGHER FRENCH RAILWAY CHARGES.—After very lengthy discussion among all the interests concerned, the French Chamber has passed a single-clause act empowering the railways to make an all-round increase of 25 per cent in their charges. This act applies to the main systems, and the Paris Ceinture Railways as well as private sidings. One of the most interesting details of the increase is that it is to be maintained for six years after December 31 of the year in which peace is declared, subject to the proviso that should the increase in revenue surpass a certain amount, the surplus is to be paid into the National Treasury. This proviso is hardly expected to become operative, but it was introduced in the bill to prevent the possibility of shareholders receiving more than the dividends guaranteed them under their agreements with the state.—*Railway Gazette, London.*

The Importance of Organized Safety Work*

A Plea for Universal Application of Methods of Reaching the Employee in Accident Prevention Campaigns

By H. W. Belnap
Manager, Safety Section, United States Railroad Administration.

IN OUR INDUSTRIAL LIFE, men engaged in manufacturing and transportation employed but a few laborers. In nearly every vocation employees knew each other by name, and were familiar with each other's work to such an extent that accidents which occurred were usually explainable and could in a measure be guarded against. But with the advent of the inventor came complicated labor-saving machinery. This labor-saving machinery led to the employment by one man or corporation, not of a few men but of hundreds, and by transportation companies of thousands. As an employee's safety was dependent upon influences which he could not control, accidents increased, until at last they became so serious in number and in character that an aroused public opinion was directed to their underlying causes.

It was quickly recognized that before any remedial action regarding accidents could be taken, accurate information as to the class, kind, and circumstances were necessary. This was particularly true in the great transportation industry, so in 1887, when Congress passed the Act to Regulate Commerce, the Interstate Commerce Commission, created by that Act, was required to gather statistics on accidents that were occurring upon interstate railroads.

When these statistics were available, the country was staggered by their total. The record of killed and injured by the use of the link-and-pin couplers then in general use and because the drawbars of cars were of uneven height clearly established a reason for legislation to correct the conditions that were responsible for so many of these distressing casualties. The first attempt of the Federal Government to deal in a legislative way in accident prevention on railroads, was the enactment by Congress in 1893 of the Safety Appliance acts. These acts have amply vindicated the wisdom of their enactment, and every representation made by those who advocated them has been established and confirmed by the practical results obtained. In the year 1893, 44.33 per cent of all accidents suffered by trainmen were due to coupling and uncoupling cars; in 1916 less than 6 per cent of all accidents to trainmen were due to this cause.

The hazard of railroad employment has been lessened and life has been made safer and injuries less frequent by the mandatory obligations of these laws. The enforcement of these acts so as to safeguard the lives and limbs of employees and travellers upon railroads marks the entrance of the Interstate Commerce Commission into its "safety first" activities.

The commission's safety work, in its scope and in its results, stands forth as a splendid example in effectively preventing death and injury on railroads. Its effectiveness has been demonstrated. Its whole basis has been accident prevention. Long before railroad managements were aroused to the necessity of more extreme vigilance to prevent the frequency with which employees were involved in fatal or serious injuries, the commission, in its annual reports, called the attention of Congress and of the public to the absolute necessity of preventive legislation in the interest of greater safety.

All accidents that occur upon interstate railroads are reported monthly to the Interstate Commerce Commission, and are made public in the Commission's "Accident Bulletin," issued quarterly. In these accident bulletins accidents are classified under five general heads, i. e.;

Accidents to passengers.
Employees on and off duty.
Other persons not trespassing.
Trespassers.
Non-train or industrial accidents.

Bulletin No. 62, which gives the figures for the year ending December 31, 1916, shows that there were a total of 206,723 casualties reported for that year, 10,001 being deaths and 196,722 injuries. There were 291 passengers killed and 8,008 injured. Of train service employees on duty, 2,210 were killed and 48,310 injured, and of train service employees not on duty 303 were killed and 811 injured.

The Trespassing Evil

Of other persons not trespassing, 1,744 were killed and 5,060 injured, while in non-train or industrial accidents, 525 persons were killed and 129,740 injured. By far the largest number of deaths under one classification are those caused to trespassers upon railroad property, there being 4,928 deaths and 4,793 injuries in this class of casualties.

An analysis of these totals for the one year, which is indicative of every year's record, impresses one by the surprisingly large number of trespassers they include. There is no reason nor excuse for this class of accidents. When it is considered that more than one-half of all of the fatal accidents that have occurred upon the railroads in this country have occurred to persons who have no right upon railroad premises, it becomes apparent that there is a fertile field for reform in dealing with the trespassing problem. Several studies have been made of the death toll to trespassers, which show, contrary to the general opinion, that the large majority of these persons are not tramps or hoboes. Probably less than 20 per cent are really tramps. Two-thirds of these accidents occur to people who live in the immediate vicinity of the place where they are killed and injured, and nearly all are wage-earners. About 15 per cent are children under 18 years of age. That this matter has received serious consideration, is evident by the recommendations that have been made by the National Association of Railroad Commissioners, representing the railroad commissions and public service commissions of all the states in the union, recommending preventive legislation, as well as by the fact that the Interstate Commerce Commission in its last annual report to Congress recommended:

"That Congress consider the advisability of prohibiting by statute, under appropriate penalty, trespasses on the trains of interstate carriers and on the tracks of such carriers at places where there are two or more tracks, or within the limits of incorporated towns, or at places where the carrier by appropriate sign or warning gives notice that trespassing on its tracks is prohibited, providing that nothing therein is to be considered as making lawful any trespass which would be unlawful under state laws; and further consider the advisability of conferring concurrent jurisdiction upon federal and state courts for the enforcement of such statute."

Vigorous measures should be undertaken to make people

*Presented at the annual meeting of the Association of Railway Chief Surgeons held at Chicago on May 6.

understand that railroad tracks are not public highways, and the use of them as such should be prohibited by law.

Educate the Employees

Regardless of the splendid results that are so apparent as a result of the enactment and enforcement of the Safety Appliance Acts, railroads continue to have an ever increasing casualty list up to the present time, and these casualties have not been classified in such a manner as to point out the specific legislation necessary to bring about substantial relief.

That certain legislation such as a law against trespassing will give some relief is admitted by all, but to the student of accident prevention, it is manifest that other methods and efforts are also essential in order to bring about a substantial reduction in accidents. Serious accidents have always received public attention, so that it is generally understood what was the cause and what can be done to prevent recurrences, but the casualties that swell the total and which demand our serious attention are the minor accidents which each year appear to become more and more frequent. Almost all, if not all students of this problem, have reached the conclusion that the best and most scientific method in accident prevention work is to reach the employee in an educational way, and by proper instruction and supervision keep constantly in the minds of all the necessity of exercising more than ordinary care in the performance of their work, as well as to bring about an elimination of all the useless and purposeless taking of chances, and by these means bring about the prevention of the little accidents as well as the big accidents that are constantly occurring on railroads.

Thirty per cent of all the people killed and 90 per cent of all the people injured on the railroads in this country are railroad employees. One employee is killed every 3½ hrs., and one employee is injured every 10 min. in train accidents alone, and taking into account all accidents, one employee is either killed or injured every 3 min. during the entire year.

The "safety first" movement has already accomplished much in bringing about safer conditions of employment, but its work has only begun; it is yet in its infancy. The crying need of the hour is to get every person who works for a railroad, regardless of the capacity, interested in the safety movement. No safety organization will be successful unless it has the active and sympathetic co-operation of all concerned. For that reason, the one main purpose of such an organization is to secure the co-operation of the employees, not only in suggesting additional safeguards to be provided so that existing hazards may be removed, but also, by educational means, to bring about an elimination of dangerous practices wherever found to exist.

Limitations of Safety Devices

The use of safety devices is an important factor in the prevention of accidents. Good results are undoubtedly obtained from their use, but no mechanical safeguard can fulfill its purpose without the co-operation of efficient and ever-alert human beings having a keen appreciation of their duties and responsibilities. Such devices can not be expected to eliminate accidents entirely, however, as the human equation must always be taken into account. Our efforts must therefore be directed to the training and the development of the human equation—of the employee—so that when the test comes he will take no chance. If it can be instilled into the minds of railroad employees that it is their duty at all times to be cautious and prudent and that they must not take unnecessary risks in the performance of their duties, a great reduction in accidents will most certainly result.

Judging by the experience of those who have given this matter the most careful thought, the best method to reach all interested appears to be in the formation of safety committees. These committees are composed of officers and employees co-operating in striving to reduce accidents in every possible way. Such organizations should certainly be commended, and deserve the loyal and hearty support of each officer and of each employee of every railroad in the United States. The benefit of such organizations can not be measured. If it is true to its purpose, it means greater efficiency in every department of the service, greater security to the lives and limbs of the employees, and better and safer service to the public, all of which are of vital importance.

Safety Committees

Such safety committees on railroads have been in operation for a number of years. On some railroads these organizations reach out into every terminal and every shop. Other railroads have perfected organizations wherein the safety features have been discussed only by the officials in charge. Both plans evidently have done some good, but the record clearly establishes the fact that those which have accomplished the most have been those organizations in which the employees have participated the largest.

After all, it appears to me that unsafe conditions and unsafe practices are known and understood best by those who work in continual connection with the unsafe conditions and the unsafe practices. That this is evident is shown by the record of recommendations that have been brought to the attention of safety committees for the purpose of correcting the unsafe conditions or practices. A complete record of the safety suggestions made by employees through their safety committees of all the railroads is not available, but from a report of a large eastern railroad, which I have just recently received, in a five-year period, 27,496 recommendations were made. Of this number 20,918, or 76 per cent, were of sufficient merit to receive attention and correction. Upon another railroad in the western territory, in a four-year period 15,559 safety suggestions were received from employees, of which number 11,708, or 75 per cent, were practical suggestions and received consideration by the committees to which they had been reported.

As indicative of the opportunity that is today presented to every employee who carefully studies unsafe conditions or unsafe practices, and reports them so that they may be changed, one employee on a western railroad made 149 safety suggestions, in 12 months, 132 of which were considered practicable and placed in effect. This man was not used exclusively in safety work; he was following his usual occupation daily and was not even a safety committeeman, yet he was so observant of the conditions that prevailed that he was able to have many unsafe conditions and practices changed and rectified. This shows what a wonderful opportunity each employee of a railroad has, if he will but exercise judgment to see to it that safe conditions are at all times established and maintained.

Experience in organized safety work has shown that casualties can be materially reduced by proper methods of education, discipline and supervision. An analysis of the records of some of the railroads that have efficient, workable "Safety First" organizations is worthy of consideration.

Chicago & North Western Record

On the Chicago & North Western the organization of "safety first" committees was commenced in May, 1910, but a complete organization was not in effect until January, 1911. In the seven and one-half years ending December 31, 1917, during which time these "safety committees" were in operation, using as a basis the number of accidents occurring in the year ending June 30, 1910, the following reduction in accidents is reported as having occurred on this railroad: There were 315 fewer employees killed, a decrease of 38.9 per cent; 16,443 fewer employees were in-

jured, a decrease of 25.3 per cent; 7 fewer passengers were killed, a decrease of 8.8 per cent; 1,454 fewer passengers were injured, a decrease of 20.8 per cent; 337 fewer outsiders were killed, a decrease of 19 per cent; and 169 fewer outsiders injured, a decrease of 3.7 per cent. Considering the totals, there were 659 fewer persons killed, a decrease of 24.6 per cent; and 18,066 fewer persons injured, a decrease of 23.6 per cent. During this same period the business of this railway increased nearly 50 per cent; more than 500 miles of new line had been completed; and the number of employees, as well as the number of locomotives and cars in service, materially increased. In six years, 27,082 recommendations made to "safety committees" were adopted and put into effect, and during this same period only 1,201 recommendations were rejected. Six thousand individual employees have served as "safety committeemen." By rotating the men who serve as safety committeemen, it is believed that the permanent employees will sooner or later all have opportunity to serve on committees. Such service inspires every committeeman with the importance of the conservation of human life and limb.

Norfolk & Western

On the Norfolk & Western "safety committees" were first organized in 1912, and the record in the reduction in the number of accidents on this railroad since the organization of these committees shows splendid results. The volume of business of the railroad steadily increased, showing a 42 per cent increase in 1916, as compared with 1912, and casualties decreased all during this period. On the basis of the number of accidents occurring in the year ending June 30, 1912, the record shows a decrease in the number of employees killed of from 23 per cent in 1913 to 49 per cent in 1916, a decrease in the number of employees injured from 22 per cent in 1914 to 41 per cent in 1916, and a decrease of employees injured in industrial work of from 21 per cent in 1914 to 24 per cent in 1916, regardless of the fact that the volume of business handled on this railroad was constantly increasing during this five-year period. During this period 7,047 safety recommendations were made, of which number 5,989, or 85 per cent, were accepted as meritorious and acted upon, and only 619, or 9 per cent, of the number submitted by the employees were rejected.

New York Central

On the New York Central an employee was appointed as early as 1910, with instructions to devote his entire time to investigate and study the cause of accidents with a view of reducing them. The need of extensive work of this kind, as a result of this one man's endeavor, was soon appreciated and in 1912 the New York Central created its "safety bureau." The decrease in deaths and injuries on this road since the time "safety committees" were organized indicates the benefit derived from organized safety work.

Using the number of accidents occurring in the year ending June 30, 1913, as a basis, the records on this railroad show a decrease in the number of employees killed in all classes of work, of 45 per cent in 1914, 43 per cent in 1915, and 24 per cent in 1916, while the decrease of employees injured in all work is 30 per cent in 1914, 29 per cent in 1915, and 7 per cent in 1916. Since the organization of "safety committees" on the New York Central, more than 40,000 safety recommendations have been made, 93 per cent of which have received favorable consideration.

The substantial decrease in the number of accidents on these three railroads, taken from different parts of the United States and operating under entirely different conditions, each having an effective and efficient safety committee organization, indicates the possibility of what may be accomplished if organizations along similar lines are created upon every railroad in the United States.

Every effort, then, to promote the co-operation of all forces interested in the enforcement of industrial efficiency of railroad employees and to eliminate accidents should meet with the encouragement of all classes. And to the support of no movement should that common encouragement come more willingly and certainly than to a safety campaign, the sole purpose of which is the elimination of accidents. For those employees who work in constant risk, there should be ready sympathy and quick relief. Money wisely and carefully spent in protecting employees is not a burden on the industry, but is without question a splendid investment.

Safety Section of Railroad Administration

In this crusade against accidents we need the active, sympathetic co-operation of every officer and every employee of every railroad, and one of the purposes of the Safety Section of the Railroad Administration is to facilitate this co-operation, in order to prevent waste of energy. At the time this section was created, it was understood it was to deal directly with each railroad, to bring about uniformity in practice, supervise such organizations for safety as are already available, and suggest such others as are desirable.

In its "safety first" work the Safety Section of the Division of Transportation, United States Railroad Administration intends to utilize to the fullest extent the safety organizations now in operation on such railroads as have working organizations, and to assist those railroads not having a safety organization to perfect such an organization as will keep constantly in the minds of all officers and employees the necessity of care and caution so as to insure greater safety in every possible way.

This is a great humanitarian work in which science, labor, business enterprises, and the government must all unite. In science we appeal especially to the mechanical engineering professions to furnish us the safest equipment; to statistics and economics to furnish us with facts and to supply the methods of investigation and of prevention; but we need most of all the help of labor, which has the greatest immediate interest in the matter, but which is too often handicapped by the lack of scientific knowledge, or by a lack of means of making itself heard. All organizations and all societies can be of material benefit and of great service in pointing out fields of investigation, so that unsafe conditions may be corrected, but better still assist in instilling into the mind of every employee the fundamental rule—that no chances of any kind must be taken.

You may rest assured that the safety movement will have the hearty support and co-operation of all government agencies to assist in the advancement of any method that will bring about a reduction in accidents. Everyone can have a great part in this philanthropic work. To make the "safety first" movement on American railroads a vital, living, energetic force for good devolves upon the officials and employees of the great railroad systems, today unified into one splendid organization working untiringly for the welfare of the greatest nation on earth.

MARCH FOREIGN TRADE SHOWS INCREASE.—March imports and exports show a partial recovery from the decline in recent months, according to a statement issued by the Bureau of Foreign and Domestic Commerce, exports for March amounted to $531,000,000, an increase of $119,000,000 over February. For the nine months ended with March exports were valued at $4,394,000,000, a decrease from the $4,637,000,000 recorded for the nine-month period a year ago. Imports were valued at $242,000,000, a gain of $34,000,000 over February. During the nine months ended with March imports amounted to $2,084,000,000, against $1,818,000,000 a year ago.

Steam Railway Statistics to December 31. 1916

Interstate Commerce Commission's Annual Abstract of Year's Operations. Reduction in Mileage

THE INTERSTATE COMMERCE COMMISSION has issued its advance abstract of statistics of railway operations for the calendar year 1916, giving figures for roads of Class I, Class II and Class III, but excluding switching and terminal companies. Probably for the first time on record the physical mileage shows a decrease on December 31 as compared with June 30.

Mileage

The physical mileage (single track) of steam roads in the United States, exclusive of switching and terminal companies, compiled from both official and unofficial information, excluding duplications, is shown below for recent years:

Year ended—	Mileage at close of year	Year ended—	Mileage at close of year
December 31, 1916	254,045.83	June 30, 1914	252,104.98
June 30, 1916	254,250.62	June 30, 1913	249,776.84
June 30, 1915	253,788.64	June 30, 1912	246,776.75

Kind of locomotive—	Number of locomotives in service on— Dec. 31, 1916	June 30, 1916
Steam	63,738	63,578
Other	335	284
Total	64,073	63,862

For the same classes of roads, the number of cars in service was reported as follows:

Kind of car—	Number of cars in service on— Dec. 31, 1916	June 30, 1916
Freight-train cars, all classes	2,342,699	2,326,987
Passenger-train cars (exclusive of cars in service of the Pullman Co.)	55,081	54,664
Company service cars	99,665	96,508

The following statement shows the number of freight-train cars that were classified. Caboose cars (28,504) are not included:

Item—	Class I roads Number	Class I roads Aggregate capacity Tons	Class II roads Number	Class II roads Aggregate capacity Tons	Class III roads Number	Class III roads Aggregate capacity Tons	Total Number	Total Aggregate capacity Tons
Box cars	1,021,757	37,096,132	8,892	274,400	1,215	28,624	1,031,864	37,399,156
Flat cars	117,355	4,426,249	12,579	384,135	3,619	95,068	133,553	4,905,452
Stock cars	82,559	2,674,685	1,300	36,805	72	1,387	83,931	2,712,877
Coal cars	884,880	42,155,468	22,117	986,601	1,542	58,662	908,539	43,200,731
Tank cars	9,507	383,630	261	8,146	125	4,032	9,893	395,808
Refrigerator cars	51,257	1,663,345	128	3,305	6	150	51,391	1,666,800
Other freight-train cars	85,796	3,880,826	6,653	228,876	2,333	50,134	94,782	4,159,836
Total	2,253,111	92,280,335	51,930	1,922,268	8,912	238,057	2,313,953	94,440,660

The following statement of mileage operated on December 31, 1916, represents the miles of all tracks covered by operating returns to the Interstate Commerce Commission and necessarily contains duplications because of the inclusion of 11,977.40 miles used under trackage rights and reported by more than one company:

Item	Class I roads	Class II roads	Class III roads	Total
Miles of road	231,674.09	19,213.78	8,817.31	259,705.18
Miles of second main track	29,222.87	186.08	5.33	29,414.28
Miles of third main track	2,716.23	5.04	.....	2,721.27
Miles of fourth main track	1,932.48	.....	.....	1,932.48
Miles of all other main tracks	257.30	.....	.....	257.30
Miles of yard track and sidings	98,334.25	3,695.10	954.46	102,983.81
Total, all tracks	364,137.22	23,100.00	9,777.10	397,014.32
Number of roads represented	181	263	410	854

The number of operating switching and terminal roads that made annual reports to the commission not covered by the above statement is 209.

The growth in the number of miles of road operated and of all tracks operated, including duplications, as covered by reports of operations to the commission, is shown in the following statement for a series of years:

Year ended—	Miles of road at close of year	Total miles of all tracks at close of year
December 31, 1916	259,705	397,014
June 30, 1916	259,211	394,944
June 30, 1915	257,569	391,142
June 30, 1914	256,547	387,208
June 30, 1913	253,470	379,508
June 30, 1912	249,852	371,238

Equipment

The number of locomotives in service on December 31, 1916, as reported by Class I, II, and III companies as compared with the number in service on June 30, 1916, is shown below:

Employees

The number of railway employees is arrived at by averaging the number in service on four days, respectively, in the middle of January, April, July, and October. Thus the number of employees does not represent the number of full-time workers. The number of employees and their aggregate compensation were reported as follows for the years ended December 31, 1916, and June 30, 1916:

Item—	Year ended— Dec. 31, 1916	June 30, 1916
Number of railway employees, all classes	1,700.814	1,654,075
Aggregate compensation	$1,506,960,995	$1,403,968,437

Capitalization and Dividends

In the returns to the commission securities issued are divided as between those actually outstanding, those nominally outstanding, and those nominally issued. Nominally outstanding securities are those reacquired by or for the issuing company and held alive. Nominally issued securities are those which have been signed and sealed but not sold.

The following statement shows the outstanding capitalization reported for the years ended December 31, 1916, and June 30, 1916:

Item—	Capitalization of railways on— Dec. 31, 1916	June 30, 1916
Stock and funded debt actually outstanding:		
Class I roads	$16,088,846,806	$16,101,172,989
Class II roads	660,027,085	655,174,740
Class III roads	143,862,223	153,758,362
Nonoperating companies	2,737,873,968	2,771,387,001
Total	$19,630,610,082	$19,681,193,092
Stock and funded debt nominally issued or nominally outstanding:		
Class I roads	$1,316,314,719	$1,301,170,117
Class II roads	56,039,603	60,039,344
Class III roads	6,823,769	7,737,383
Nonoperating companies	39,520,409	41,932,309
Total	$1,418,698,500	$1,410,879,153

For the companies under consideration, the relation of capital stock and dividends was as follows:

Item—	Year ended— Dec. 31, 1916	June 30, 1916
Capital stock actually outstanding	$8,755,403,517	$8,743,106,639
Capital stock actually outstanding paying no dividends	$3,325,280,282	$3,463,678,685
Per cent paying no dividends	37.98	39.62
Amount of dividends declared during the year by operating and nonoperating companies	$366,561,494	$342,109,396
Ratio of amount of dividends declared to—		
Dividend-paying stock.....per cent	6.75	6.48
All actually outstanding stock..per cent	4.19	3.91

Investment in Road and Equipment

The figures presented under this caption include returns for investment in road and equipment shown by operating roads of Class I and Class II, as well as by their subsidiary nonoperating roads (leased, operated under contract, etc.). The expenditures for additions and betterments, as well as the expenditures for new lines and extensions, during the year ended December 31, 1916, are analyzed in the following tabular statement:

Investment to December 31, 1916 (239,120.61 miles of line represented)		$17,681,126,339	
Investment to December 31, 1915		17,349,632,708	
Increase, 1916 over 1915			$331,493,631
Investment during the year:			
In new lines and extensions	$7,335,064		
In additions and betterments—			
On owned lines.....$327,456,492			
On leased lines..... 19,234,014			
	346,690,506		
Total investment during the year		354,025,570	
Adjustments	22,432,435		
Difference between record value of grantor and purchase price of grantee in cases of roads sold, merged, consolidated, etc.	*44,964,374*		
Total during the year		*22,531,939*	
Net increase during the year			331,493,631

Public Service of Railways

The following table gives comparative figures for the years ended December 31, 1916, and June 30, 1916, pertaining to public service of railways and covers returns for roads having operating revenues above $100,000 for the year:

Item	Year ended— Dec. 31, 1916	June 30, 1916
Number of passengers carried	1,039,012,308	1,005,683,174
Number of passengers carried 1 mile	35,121,675,959	34,213,596,127
Number of passengers carried 1 mile per mile of road	141,305	137,818
Number of tons of revenue freight carried, including freight received from connections	2,316,088,894	2,225,943,388
Ton-mileage, or number of tons carried 1 mile	365,771,824,741	343,099,937,805
Freight density, or number of tons carried 1 mile per mile of road	1,470,274	1,380,349
Average number of ton-miles of revenue freight per train-mile	550.15	534.95
Average receipts per passenger per mile..cents	2.046	2.006
Average receipts per ton per mile.....cents	0.715	0.716
Passenger-service train revenue per train-mile	$1.44224	$1.38619
Freight revenue per train-mile	$3.93483	$3.82828
Operating revenues per train-mile	$2.90561	$2.80074
Operating expenses per train-mile	$1.90662	$1.83279
Ratio of operating expenses to operating revenues .....per cent	65.62	65.44

Revenues and Expenses

The operating revenues for the year ended December 31, 1916, of the railways in the United States herein presented (average mileage operated 257,324.61 miles) were $3,691,065,217, or $14,344 per mile of line operated; their operating expenses were $2,426,250,521, or $9,429 per mile of line operated. The corresponding figures for the year ended June 30, 1916, were: Operating revenues, $3,472,641,941, or $13,485 per mile of line operated; operating expenses, $2,277,202,278, or $8,844 per mile of line operated. The following tables present a statement of the operating revenues in detail and a statement of the operating expenses assigned to the eight general classes:

RAILWAY OPERATING REVENUES, YEAR ENDED DECEMBER 31, 1916

Item	Class I roads	Class II roads	Class III roads	Total
Freight	$2,560,988,111	$57,306,587	$12,797,259	$2,631,091,957
Passenger	706,608,630	13,376,857	2,373,884	722,359,371
Excess baggage	6,064,359	93,448	14,844	6,172,651
Sleeping car	2,895,797	551	.....	2,896,348
Parlor and chair car	1,365,037	13,340	14	1,378,391
Mail	61,195,800	1,108,962	255,222	62,559,984
Express	90,155,445	1,108,936	231,109	91,495,490
Other passenger-train	5,913,622	61,469	10,935	5,986,026
Milk	16,115,884	318,256	133,167	16,567,307
Switching	39,419,827	1,422,768	247,117	41,089,712
Special service train	1,688,198	97,646	11,647	1,797,491
Other freight-train	273,619	27,757	7,044	308,420
Water transf's—Fr'ht	652,790	1,128	.....	653,918
Water transf's—Pass.	1,684,367	2,715	.....	1,687,082
Water transfers—Vehicles and live stock	2,325,202	.....	.....	2,325,202
Water transf's—Other	1,221,751	36	.....	1,221,787
Total rail-line transportation revenue	$3,498,568,439	$74,940,456	$16,082,242	$3,589,591,137
Freight	$14,222,511	$477,977	$10,581	$14,711,069
Passenger	1,435,403	259,690	17,289	1,712,382
Excess baggage	4,524	141	116	4,781
Other pass. service	56,559	5,882	.....	62,441
Mail	27,871	19,551	4,915	52,337
Express	20,753	10,428	2,149	33,330
Special service	1,930	1,125	130	3,185
Other	330,650	351	3,305	334,306
Tot. water-line transportation revenue	$16,100,201	$775,145	$38,485	$16,913,831
Dining and buffet	$17,466,682	$3,083	.....	$17,469,765
Hotel and restaurant	6,448,258	15,513	$2,268	6,466,039
Station, train and boat privilege	3,897,093	202,309	3,583	4,102,985
Parcel room	1,050,812	3,229	93	1,054,134
Storage—Freight	3,524,463	45,707	7,245	3,577,415
Storage—Baggage	669,082	10,388	225	679,695
Demurrage	18,372,713	690,354	135,320	19,198,387
Teleg'h and telephone	1,885,119	76,771	15,876	1,977,766
Grain elevator	2,231,200	.....	.....	2,231,200
Stockyard	1,491,392	57	473	1,491,922
Power	2,184,040	73,638	910	2,258,588
Rents of buildings and other property	4,464,872	213,169	51,178	4,729,219
Miscellaneous	16,977,259	639,301	134,221	16,850,781
Total incidental operating revenue	$79,762,985	$1,973,519	$351,392	$82,087,896
Joint facility—Cr	$3,830,343	$64,528	$9,135	$3,904,006
Joint facility—Dr	*1,396,202*	*35,306*	*145*	*1,431,653*
Total joint facility operating revenue	$2,434,141	$29,222	$8,990	$2,472,353
Total railway operating revenues	$3,596,865,766	$77,718,342	$16,481,109	$3,691,065,217

RAILWAY OPERATING EXPENSES, YEAR ENDED DEC. 31, 1916

Item	Class I roads	Class II roads	Class III roads	Total
Maintenance of way and structures	$421,775,812	$13,281,966	$4,137,284	$439,195,062
Maintenance of equipment	595,566,336	11,339,539	2,199,170	609,105,045
Traffic expenses	62,839,996	1,414,156	247,971	64,502,123
Transportation expenses—Rail line	1,164,274,088	24,934,730	5,709,851	1,194,918,669
Transportation expenses—Water line	9,713,687	448,728	19,709	10,182,124
Miscellaneous operations	26,858,441	154,715	31,037	27,044,193
General expenses	84,418,107	3,590,973	1,238,030	89,247,110
Transportation for investment—Cr.	*8,048,055*	*27,864*	*6,506*	*8,082,425*
Total railway operating expenses	$2,357,398,412	[1]$55,257,763	[2]$13,594,346	[3]$2,426,250,521

[1] Includes $120,820, unclassified. [2] Includes $17,800, unclassified. [3] Includes $138,620, unclassified.

Income Account and Profit and Loss Account

The tables following present for the year ended December 31, 1916, the condensed income account and the profit and loss account of the operating roads and their subsidiary nonoperating roads. The figures given include such intercorporate payments as may be involved in the items stated. Returns for a few small roads have been omitted because of incompleteness. The accounts of the operating roads include both operating and financial transactions, while the accounts of the nonoperating roads are confined for the most part to receipts and payments under leases, contracts, and agreements.

INCOME ACCOUNT, YEAR ENDED DEC. 31, 1916

Item	Operating roads: Class I roads	Class II roads	Class III roads	Total operating roads	Non-operating roads: Subsidiary to Class I roads	Subsidiary to Class II roads	Subsidiary to Class III roads	Total nonoperating roads
OPERATING INCOME								
Railway operating revenues	$3,596,865,766	$77,718,342	$16,481,109	$3,691,065,217	.....	.....	.....	.....
Railway operating expenses	2,357,398,412	55,257,763	13,594,346	2,426,250,521	.....	.....	.....	.....
Net revenue from railway operations	$1,239,467,354	$22,460,579	$2,886,763	$1,264,814,696	.....	.....	.....	.....
Railway tax accruals	$157,113,372	$3,984,594	$727,356	$161,825,322	$1,612,335	$9,834	$3,361	$1,625,530
Uncollectible railway revenues	797,486	13,180	7,756	818,422	.....	.....	.....	.....
Railway operating income	$1,081,556,496	$18,462,805	$2,151,651	$1,102,170,952	*$1,612,335*	*$9,834*	*$3,361*	*$1,625,530*
Revenues from miscellaneous operations	$40,833,977	$47,325	$174,373	$41,055,675	.....	.....	.....	.....
Expenses of miscellaneous operations	34,324,932	44,663	153,966	34,523,561	.....	.....	.....	.....
Net revenue from miscellaneous operations	$6,509,045	$2,662	$20,407	$6,532,114	.....	.....	.....	.....
Taxes on miscellaneous-operating property	$1,966,141	$1,618	$3,563	$1,971,322	.....	.....	.....	.....
Miscellaneous operating income	$4,542,904	$1,044	$16,844	$4,560,792	.....	.....	.....	.....
Total operating income	$1,086,099,400	$18,463,849	$2,168,495	$1,106,731,744	*$1,612,335*	*$9,834*	*$3,361*	*$1,625,530*
NON-OPERATING INCOME								
Hire of freight cars—Credit balance	$20,964,852	$1,992,447	$141,138	$23,098,437	.....	.....	.....	.....
Rent from locomotives	7,540,673	239,427	52,957	7,833,057	$5,475	.....	.....	$5,475
Rent from passenger-train cars	11,256,786	120,451	6,647	11,383,884	8,505	.....	.....	8,505
Rent from floating equipment	200,837	6,132	.....	206,969	.....	.....	.....	.....
Rent from work equipment	2,100,142	31,781	4,905	2,136,828	927	.....	.....	927
Joint facility and rent income	24,211,969	1,223,179	196,996	25,632,144	505,907	.....	.....	505,907
Income from lease of road	4,382,393	488,121	17,359	4,887,873	150,174,103	$196,996	$174,238	150,545,337
Miscellaneous rent income	8,369,241	253,879	22,395	8,645,515	115,160	*935*	25,116	139,341
Miscellaneous non-operating physical property	2,956,131	64,593	10,725	3,031,449	112,919	.....	.....	112,919
Separately operated properties—Profit	3,230,514	.....	75	3,230,589	35,898	.....	.....	35,898
Dividend income	103,194,671	158,586	1,415	103,354,672	307,342	.....	.....	307,342
Income from funded securities	50,520,614	219,152	49,739	50,789,505	3,044,834	644	.....	3,045,478
Income from unfunded securities and accounts	27,035,177	320,827	76,705	27,432,709	303,095	4,055	.....	307,150
Income from sinking and other reserve funds	2,890,362	72,220	5,580	2,968,162	556,644	.....	.....	556,644
Release of premiums on funded debt	295,801	959	.....	296,760	44,735	937	.....	45,672
Contributions from other companies	1,032,709	1,096,271	253,285	2,382,265	.....	.....	.....	.....
Miscellaneous income	1,616,362	100,463	26,993	1,743,818	178,708	.....	101	178,809
Total non-operating income	$271,799,234	$6,388,488	$866,914	$279,054,636	$155,394,252	$201,697	$199,455	$155,795,404
Gross income	$1,357,898,634	$24,852,337	$3,035,409	$1,385,786,380	$153,781,917	$191,863	$196,094	$154,169,874
DEDUCTIONS FROM GROSS INCOME								
Hire of freight cars—Debit balance	$43,622,850	$3,090,252	$734,339	$47,447,441	$734,725	$14	$239	$734,978
Rent for locomotives	6,644,421	694,268	147,488	7,486,177	$187,609	.....	.....	187,609
Rent for passenger-train cars	11,981,598	340,611	59,809	12,382,018	293,509	.....	.....	239,509
Rent for floating equipment	3,061,272	11,564	1,173	3,074,009	.....	.....	.....	.....
Rent for work equipment	520,411	31,766	7,870	560,047	3,317	.....	.....	3,317
Joint facility rents	41,916,686	953,564	136,828	43,007,078	706,822	.....	.....	706,822
Rent for leased roads	158,377,958	274,765	263,840	158,916,563	972,732	.....	.....	972,732
Miscellaneous rents	5,523,004	128,079	85,947	5,737,030	314,310	90	50	314,450
Miscellaneous tax accruals	2,292,698	39,758	3,793	2,336,249	303,511	.....	.....	303,511
Separately operated properties—Loss	3,451,927	2,172	721	3,454,820	67,583	.....	.....	67,583
Interest on funded debt	406,667,567	13,383,281	2,365,479	422,416,327	57,866,281	149,917	70,728	58,086,926
Interest on unfunded debt	14,854,425	1,447,154	1,093,846	17,395,425	2,332,191	7,862	41,264	2,381,317
Amortization of discount on funded debt	2,893,200	259,844	50,070	3,203,514	173,293	850	.....	174,143
Maintenance of investment organization	702,053	6,010	.....	708,063	386,526	7,486	2,294	396,306
Income transferred to other companies	3,702,470	432,587	19,199	4,154,256	2,207,237	9,960	.....	2,217,197
Miscellaneous income charges	4,805,421	47,196	4,779	4,857,396	638,275	.....	1	638,276
Total deductions from gross income	$711,017,961	$21,142,871	$4,975,581	$737,136,413	$67,187,921	$176,179	$114,576	$67,478,676
Net income	$646,880,673	$3,700,466	*$1,940,172*	$648,649,967	$86,593,996	$15,684	$81,518	$86,691,198
DISPOSITION OF NET INCOME								
Income applied to sinking and other reserve funds	$15,117,355	$334,282	$42,899	$15,494,536	$1,056,010	.....	.....	$1,056,010
Dividend appropriations of income	187,985,355	1,964,412	279,101	190,228,868	39,371,909	$58,557	$48,000	39,478,466
Income appropriated for investment in physical property	62,510,056	687,009	73,039	63,270,104	1,490,075	25,000	.....	1,515,075
Stock discount extinguished through income	.....	12,921	12,250	25,171	.....	.....	.....	.....
Miscellaneous appropriations of income	20,359,899	96,255	4,697	20,460,851	47,321	.....	.....	47,321
Total appropriations of income	$285,972,665	$3,094,879	$411,986	$280,479,530	$41,965,315	$83,557	$48,000	$42,096,872
Income balance transferred to profit and loss	$360,908,008	$614,587	*$2,352,158*	$359,170,437	$44,628,681	*$67,873*	$33,518	$44,594,326

PROFIT AND LOSS

Item	Operating roads: Class I roads	Class II roads	Class III roads	Total operating roads	Non-operating roads: Subsidiary to Class I roads	Subsidiary to Class II roads	Subsidiary to Class III roads	Total nonoperating roads
Credit balance transferred from income	$378,177,670	$7,790,824	$1,362,027	$387,330,521	$47,571,519	$49,151	$87,123	$47,707,793
Profit on road and equipment sold	3,022,682	28,496	17,635	3,068,813	106,365	.....	.....	106,365
Delayed income credits	926,196	184,190	35,264	1,145,650	871,078	.....	.....	871,078
Unrefundable overcharges	918,582	63,123	788	982,493	.....	.....	.....	.....
Donations	1,347,547	404,522	90,643	1,842,712	112,612	.....	.....	112,612
Miscellaneous credits	32,095,557	4,747,606	804,858	37,648,021	1,911,228	276	92	1,911,596
Total credits during year	$416,488,234	$13,218,761	$2,311,215	$432,018,210	$30,572,802	$49,427	$87,215	$50,709,444
Debit balance transferred from income	$17,269,662	$7,176,237	$3,714,185	$28,160,084	$2,942,838	$117,024	$53,605	$3,113,467
Surplus applied to sinking and other reserve funds	1,074,020	85,957	32,568	1,192,545	540,591	.....	.....	540,591
Dividend appropriations of surplus	118,191,582	3,090,352	365,607	121,647,541	15,076,154	20,000	40,000	15,136,154
Surplus appropriated for investment in physical property	18,962,990	333,970	28,231	19,315,191	336,388	.....	.....	336,388
Stock discount extinguished through surplus	46,337	450,888	9,500	506,725	16,900	.....	.....	16,900
Debt discount extinguished through surplus	17,713,165	259,988	3,967	17,977,120	111,375	102	6,875	118,352
Miscellaneous appropriations of surplus	1,823,501	290,797	49,583	2,163,881	18,655	.....	3,821	22,476
Loss of retired road and equipment	18,171,732	683,444	167,476	19,022,652	634,622	257,285	9,547	901,454
Delayed income debits	3,346,356	1,982,168	80,479	5,409,003	652,440	.....	2,564	655,004
Miscellaneous debits	54,333,840	1,009,002	1,065,556	56,408,398	1,910,135	378	39,260	1,949,773
Total debits during year	$250,923,185	$15,362,803	$5,517,152	$271,803,140	$22,240,098	$394,789	$155,672	$22,790,559
Net increase during year	$165,565,049	*$2,144,042*	*$3,205,937*	$160,215,070	$28,332,704	*$345,362*	*$68,457*	$27,918,885
Balance at beginning of year	1,096,353,229	*21,940,474*	*17,903,651*	1,056,509,104	13,562,830	*450,415*	*696,442*	12,415,973
Balance at end of year	$1,261,918,278	*$24,084,516*	*$21,109,588*	$1,216,724,174	$41,895,534	*$795,777*	*$764,899*	$40,334,858

Over $100,000,000 Subscribed by Railway Employees

THE RAILWAY EMPLOYEES of the United States by their subscriptions to the Third Liberty Loan have shown themselves worthy to be represented by their railway engineer regiments in France. Their subscriptions in the Loan have considerably exceeded $100,000,000 and are at least three and possibly four times as great as their totals in the Second Loan.

The total employees' subscriptions in the Second Loan were $36,000,000. In the Third Loan the Liberty Loan Committee for the eastern regional district with incomplete returns reported on Wednesday subscriptions by 660,000 employees for $45,000,000. Similarly the western regional district Liberty Loan Committee reported 650,000 subscribers for $50,013,000.

The railroad employees in each of these districts handsomely exceeded the total subscriptions by employees on the railroads of the entire country in the Second Loan.

In the southern regional district incomplete returns on Wednesday showed $9,628,000, making a total for the country of $104,641,000.

The following table will show how well the employees of several important railroads in the east topped their totals in the Second Loan. The reports for the Third Loan, it will be understood, are not complete.

Lines East and West.	Subscribers	Amounts
Pennsylvania System.		
Second Loan	124,789	$9,243,500
Third Loan	201,350	12,061,900
New York Central System.		
Second Loan	33,284	2,210,050
Third Loan	143,562	10,402,900
Erie Railroad.		
Second Loan	15,610	1,097,000
Third Loan	34,867	2,134,100
Delaware, Lackawanna & Western.		
Second Loan	17,671	1,071,500
Third Loan	20,920	1,282,250
Lehigh Valley.		
Second Loan	9,915	625,650
Third Loan	22,801	1,396,100
Baltimore & Ohio.		
Second Loan	6,496	501,800
Third Loan	53,182	3,872,450
Boston & Maine.		
Second Loan	3,464	320,000
Third Loan	21,515	1,400,000
New York, New Haven & Hartford.		
Second Loan	242	21,700
Third Loan	27,518	1,725,350

Reports received until noon Wednesday showed 650,000 subscribers to the Liberty Loan out of 731,000 employees of the railways in the Western Regional District. The total amount subscribed was $50,013,000, and adding corporate subscriptions $51,962,000. The average subscription by employees was $77. Sixty-one roads reported that all of their employees had subscribed and 177 roads that over 70 per cent subscribed. The largest amount subscribed on any individual line was $4,530,000 on the Southern Pacific System. The Santa Fe lines were next with $4,000,000. Of thirteen roads with subscriptions totaling over $1,000,000, the Rock Island Lines alone showed subscriptions for 100 per cent of their employees. The Missouri Pacific was next with 99.38 per cent. The highest average subscription on these roads was on the Northern Pacific, $91.00.

TRAVEL PERMITS ON RAILWAYS.—In connection with the proposed issuing of permits for railway traveling in England, a correspondent points out that a scheme of the kind has for some time past been in operation in Belgium under the German military authorities, civilians being obliged to obtain official sanction before moving from one part of the country to another. It was apparently proposed to adopt the idea for Germany but the Prussian State Railways Administration decided against it on the ground that it would not be feasible in the present circumstances.—*Railway Gazette, London.*

Central News Photo Service

British Troops Boarding a "Leave" Train in the Rain

General News Department

The enginehouse of the Boston & Maine at South Vernon, Vt., was destroyed by fire on April 25; estimated loss, including a cottage adjacent and damage to two locomotives, $20,000.

The freight house of the Baltimore & Ohio at Braddock, Pa., was destroyed by fire on May 2; estimated loss including a large amount of freight, $225,000. The fire is believed to have been incendiary.

The union station at Houston, Tex., is now used by the passenger trains of the International & Great Northern, which, until the consolidation of interests following government control, ran to and from the I. & G. N. station at Congress avenue.

The Atlanta (Ga.) Chamber of Commerce has aided in securing positions in Atlanta for a number of the railroad traffic men whose offices in that city have been abolished. According to a local newspaper there are 114 men affected by the order discontinuing solicitation of passengers and freight, of whom about one-third desired to remain in Atlanta.

The Overman Bill, authorizing the President of the United States to reorganize government departments, which has passed the Senate, was on Tuesday reported favorably to the House of Representatives. The proposed amendment to exempt the Interstate Commerce Commission from the operation of this law was not included, having been defeated in the Judiciary Committee by a vote of 12 to 6.

The Brotherhood of Railroad Trainmen, according to statements of its officers in the newspapers, now has in its membership nearly all of the brakemen on the Louisville & Nashville. Until the issuance of the circular by the director general saying that there should be no discrimination between union and non-union men in the railroad service, the brakemen of the Louisville & Nashville had not belonged to any union.

Investigation of the fire which destroyed the shops of the Lake Erie & Western at Lima, Ohio, on April 24, mentioned in the *Railway Age* of May 3, page 1138, indicates that there is no substantial evidence that it was caused by an incendiary. The suspect who was arrested has been released. Less equipment was destroyed than was first reported, only six small locomotives, about 25 years old, one old baggage car and one old coach.

The United States Shipping Board, Edward N. Hurley, chairman, is now organized in six divisions, and the Emergency Fleet Corporation, subordinate to the Shipping Board, has eleven divisions; and the two organizations, the Shipping Board and the Emergency Fleet Corporation have agencies in 15 cities. An outline of these organizations, with a list of the officers and local representatives, is printed in the May number of the Official Railway Guide.

The Quartermaster's Department of the United States Army, following its reservation of space in the new Pennsylvania freight station in Chicago issued orders to those unions which were striking to resume work on the building immediately. Accordingly all have returned to work with the exception of electricians installing elevators in the building. These men refuse to return to work until the Otis Elevator Company meets an agreement made before the state arbitration board.

In a letter to western roads, dated May 7, regional director R. H. Aishton, of the Western Regional District, asks that officers best qualified to handle the full economy campaign, personally attend the convention of the International Railway Fuel Association to be held in Chicago May 23 and 24. He has suggested that this representation include general managers, general superintendents, superintendents of motive power, train despatchers, master mechanics, traveling engineers, purchasing agents, superintendents, etc.

The locomotive boiler inspectors of the government will receive substantial increases of salary, if Congress accepts a report presented in the House this week by the Committee on Interstate and Foreign Commerce. By the bill as reported the chief inspector will be advanced from $4,000 to $5,000; two assistant chief inspectors from $3,000 to $4,000; and fifty district inspectors from $1,800 to $3,000. The report says that the legislative agents of the brotherhoods of enginemen, conductors and firemen, supported the bill.

Stenciling Freight Cars

The Executive Committee of the Master Car Builders' Association has issued Circular No. 40 requesting that the placing of reporting marks on freight cars between two horizontal bars be considered as a Standard of the Association.

The Railway Regiments' Tobacco Fund

Colonel Wildurr Willing of the 12th Engineers (Railway) has acknowledged receipt under date of April 10, of two shipments of tobacco. He states that "This tobacco was divided among the enlisted personnel of the regiment and I am sure the men have had no greater treat since entering the service of the government."

The Supply of Steel

Practically the entire output of steel has been commandeered for the government by the War Industries Board. The surplus remaining after the government's war needs have been met, together with a certain part of the output not required for such purposes, will have to answer for the non-war industries, under strict government supervision. This plan was outlined to a meeting of the American Iron & Steel Institute at New York last week by J. L. Replogle, the steel director for the War Industries Board, who said that altogether too much steel was being absorbed by non-essentials and that the government's requirements would require practically the entire output. Among the requirements for steel he mentioned the quantities needed for cars and locomotives and added that the director general of railroads had asked for 2,000,000 tons of rails.

To Guard Railroad Securities.

The National Association of Owners of Railroad Securities has issued a letter to the directors of railroads, now under government control and operation, calling to their attention the fact that they now have the responsibility of representing all classes of securities issued by their respective railroads as the contracting parties on behalf of the owners of the properties, in the execution of the proposed contract which each railroad is to make with the government.

The sub-Executive Committee of the association has held several conferences with railroad men and financiers, as a result of which there has been appointed a special committee representing owners of railroad securities, the same consisting of S. Davies Warfield, President of the Continental Trust Company, Baltimore, chairman; Gordon Abbott, chairman of the Old Colony Trust Company, Boston; James Brown, of Brown Brothers & Co., New York; Frederick H. Ecker, treasurer of the Metropolitan Life Insurance Company, New York, and John J. Pulleyn, president of the Emigrant Industrial Savings Bank, New York. Samuel Untermyer and B. H. Inness Brown, the latter of the firm of Hornblower, Miller, Garrison & Potter, have been named as counsel to the committee.

REVENUES AND EXPENSES OF RAILWAYS

Month of January, 1918

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total (inc. misc.)	Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.					
Alabama & Vicks	141	$106,704	$50,162	$177,178	$14,614	$35,778	$5,475	$78,453	$6,986	$142,492	80.42	$34,686	$10,500	$24,186	—$13,042
Atch., Top. & Santa Fe	8,641	7,094,225	2,824,417	10,834,788	1,426,277	2,176,605	177,731	4,149,846	231,998	8,198,717	75.67	2,636,071	557,630	2,077,520	—1,522,940
Cumberland Valley	163	220,931	54,540	302,043	30,871	45,058	4,125	142,222	10,960	234,061	77.49	67,982	9,720	58,261	—54,529
El Paso & Southwestern	1,028	951,935	212,364	1,219,615	101,126	175,371	22,044	352,847	31,409	688,793	56.48	530,822	50,985	479,832	—100,286
Fla. East Coast	764	359,342	277,695	755,494	72,694	89,566	16,040	254,834	19,128	445,744	59.00	309,750	37,271	272,375	—107,981
Gulf, Colo. & Santa Fe	1,937	1,091,670	413,794	1,598,514	273,829	248,746	28,456	519,476	52,938	1,123,089	70.26	475,425	69,193	405,427	8,532
Lehigh Valley	1,446	2,534,056	324,235	3,195,888	526,897	993,052	71,154	2,330,047	88,336	4,019,462	125.77	—823,574	161,471	—985,299	—1,346,307
Panhandle & Santa Fe	709	335,158	92,788	454,174	57,467	112,653	4,305	163,027	14,153	349,960	77.05	104,214	17,432	86,782	—103,800
St. Louis-San. Fran. & Texas	143	114,589	23,533	144,458	11,942	21,854	1,481	51,187	4,069	90,533	62.67	53,925	1,637	52,288	43,323

Two Months of Calendar Year, 1918

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total (inc. misc.)	Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.					
Galveston, Harrisburgh & San Antonio	1,360	$2,369,517	$730,535	$3,311,710	$317,437	$411,962	$81,706	$1,154,248	$92,539	$2,056,946	62.11	$1,254,764	$118,000	$1,136,175	$172,446
Galveston Wharf	13	.....	.....	147,173	2,084	2,017	817	43,898	1,333	90,422	61.44	56,751	24,600	32,151	—59,139
Georgia	328	598,953	220,346	881,563	68,906	111,555	23,473	395,288	21,264	620,853	70.43	260,710	11,900	248,725	122,871
Georgia Southern & Florida	402	291,918	177,697	517,741	74,645	109,194	13,437	223,773	18,809	441,492	85.27	76,249	26,574	49,211	—51,189
Grand Trunk West	347	573,000	218,000	1,202,031	202,839	397,604	36,414	764,502	46,662	1,456,957	121.21	—254,926	75,298	—330,226	—411,280
Great Northern	8,255	7,610,262	2,007,144	10,793,064	1,605,745	2,317,191	177,188	6,273,140	261,037	10,778,638	99.87	14,426	884,850	—871,701	—2,368,868
Gulf & Ship Island	307	267,215	82,085	379,727	66,851	64,246	7,611	124,292	19,407	283,006	74.53	92,721	21,761	74,737	—27,093
Gulf, Mobile & Northern	402	279,534	61,549	358,941	45,320	68,605	10,247	131,539	19,001	274,721	76.54	84,220	19,804	64,406	—21,590
Hocking Valley	349	1,172,791	126,376	1,355,250	209,458	532,551	15,503	683,593	40,579	1,481,104	109.29	—125,854	99,700	—225,554	—464,813
Houston, East & West Texas	190	239,145	68,092	327,189	21,599	40,287	4,171	126,972	6,202	209,685	64.09	117,505	13,080	104,388	6,718
Houston & Texas Central	948	1,010,463	287,630	1,395,280	144,193	201,148	31,409	539,274	40,364	955,986	68.52	439,293	74,060	364,616	38,636
Indiana Harbor Belt	116	.....	.....	551,688	203,574	175,755	2,891	464,496	21,303	868,019	157.34	—316,331	17,974	—334,305	—490,630
International & Great Northern	115	1,317,110	549,958	2,041,488	236,713	365,062	39,899	867,805	66,600	1,569,759	76.89	471,728	60,000	411,290	118,366
Kans. City, Mex. & Orient	272	159,788	22,532	191,442	31,350	66,688	9,430	107,090	13,069	227,627	118.90	—36,186	12,500	—48,686	—24,621
Kanawha & Michigan	176	433,736	90,661	541,529	86,226	198,308	5,468	197,204	16,644	503,850	94.04	37,679	34,300	3,379	—65,631
Kansas City, Mex. & Orient of Tex	465	172,172	22,936	206,339	36,533	57,032	8,022	103,688	7,166	212,441	102.96	—6,101	10,000	—16,184	—2,402
Kansas City Terminal Co	24	.....	.....	176,694	18,195	34,043	.....	87,719	4,036	144,610	81.84	32,084	40,524	—8,439	—40,304
Lake Erie & Western	900	942,518	91,551	1,086,975	153,536	284,508	23,156	602,224	34,477	1,097,901	101.01	—10,926	49,827	—61,103	—408,511
Lehigh & Hudson River	96	256,412	7,476	275,538	37,204	58,629	3,249	153,503	9,142	261,726	94.99	13,811	12,000	1,811	—73,620
Lehigh & New England	296	359,826	2,969	388,627	77,256	105,055	4,856	193,234	15,423	395,769	101.84	—7,142	17,314	—24,456	—184,873
Long Island	398	624,764	1,330,244	2,219,600	348,733	372,030	18,275	1,326,852	76,069	2,165,340	97.56	54,261	151,944	—98,818	—197,524
Los Ang. & Salt Lake	1,154	1,147,120	665,543	1,983,742	334,084	390,388	61,916	728,350	46,090	1,593,504	80.33	390,238	127,351	261,951	—129,321
Louisiana & Arkansas	302	216,843	52,617	280,359	43,421	41,797	6,909	93,529	10,015	195,671	69.79	84,688	20,411	64,276	37,458
Lou. Ry. & Nav. Co	356	319,734	78,693	419,314	53,589	55,444	9,622	196,684	13,645	328,983	78.46	90,331	28,000	62,289	—25,561
Lou. West	207	429,627	175,929	640,991	33,215	71,816	14,371	154,850	17,920	296,907	46.32	844,084	29,210	314,729	100,464
Louisville & Nashville	5,074	9,057,325	3,117,386	12,968,651	1,577,238	2,789,643	242,322	5,492,646	248,020	10,399,060	80.19	2,569,591	474,715	2,092,170	—1,280,762
Louisville, Hend. & St. Louis	199	278,903	81,326	376,476	54,568	53,694	11,703	171,020	7,975	299,378	79.52	77,097	7,600	69,478	—46,665
Maine Cent.	1,216	1,202,959	500,437	1,847,393	448,184	417,458	21,667	1,275,415	57,802	2,219,957	120.17	—372,564	136,457	—509,073	—735,538
Md. Delaware & Va	82	22,727	6,630	30,793	7,215	14,648	3,295	58,098	2,864	86,120	279.67	—55,327	2,184	—57,511	53,090
Michigan Central	1,861	4,817,324	1,772,703	7,550,597	1,029,994	1,698,993	141,146	4,027,654	172,411	7,217,607	95.59	332,990	288,300	43,378	—949,734
Midland Valley	386	358,108	104,371	486,861	87,594	63,007	5,845	199,856	20,440	377,041	77.44	109,820	13,655	96,132	—4,216
Mineral Range	100	172,621	4,562	182,277	34,842	36,122	892	113,177	2,281	187,314	102.76	—5,037	6,600	—11,637	—11,832
Minneapolis & St. Louis	1,646	1,274,100	315,825	1,693,374	230,502	325,161	34,661	872,690	48,582	1,511,900	89.28	181,474	97,127	83,318	—215,444
Minn. International Ry. Co	195	109,266	43,646	164,399	17,429	28,013	1,049	92,608	6,326	145,425	88.46	18,974	8,143	10,831	—53,917
Minn., St. Paul & Sault Ste. Marie	4,227	2,754,059	909,664	4,021,872	535,780	879,138	76,581	2,243,746	134,811	3,888,567	96.69	133,305	345,414	212,118	—1,191,154
Missouri & North Arkansas	365	131,853	65,003	213,254	41,493	46,298	5,713	102,760	10,825	206,826	96.99	6,428	11,107	—4,986	—57,287
Missouri, Kansas & Texas System	3,869	4,505,204	2,093,237	7,110,727	1,106,929	1,714,923	122,856	3,367,072	266,561	6,625,753	93.18	484,973	282,137	204,532	—386,370
Missouri, Okla. & Gulf	332	223,535	54,555	291,277	54,153	69,405	5,316	167,449	16,627	313,234	107.54	—21,956	8,000	—40,011	—77,614
Missouri, Okla. & Gulf of Tex	9	34,432	1,146	36,147	2,268	3,299	646	8,298	1,062	15,572	43.08	20,575	502	20,074	10,785
Missouri Pacific	7,301	8,340,290	2,718,608	12,132,721	1,687,603	2,326,848	236,429	5,262,736	305,913	9,857,568	81.25	2,275,153	539,160	1,733,629	.....
Mobile & Ohio	1,159	1,537,064	262,297	1,917,588	247,807	565,107	72,762	914,355	63,384	1,863,416	97.17	54,172	87,592	—33,860	—468,107
Morgan's La. & Tex. R. R. & S. S. Co.	400	841,583	268,159	1,186,939	111,549	163,112	21,332	405,111	29.204	735,828	61.99	451,111	59,162	391,331	55,295
Monongahela	108	331,101	32,241	341,023	101,523	31,317	1,967	152,477	8,624	295,909	86.77	45,113	7,561	37,549	—126,631
Monongahela Connecting	5	.....	.....	256,692	52,415	51,787	773	156,745	8,985	270,705	105.46	—14,013	4,352	—18,365	—105,198
Nash., Chatt. & St. L.	1,236	1,776,572	639,160	2,597,445	261,585	530,252	101,162	1,233,397	72,731	2,210,924	85.12	386,520	66,668	319,632	—148,067

REVENUES AND EXPENSES OF RAILWAYS

TWO MONTHS OF CALENDAR YEAR, 1918—Continued

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Maintenance of: Way and structures.	Equipment.	Operating expenses: Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Nevada Northern	168	$362,037	$28,292	$400,413	$35,820	$44,138	$1,533	$97,680	$10,221	$189,521	47.33	$210,892	$20,797	$190,096	—$779
New Orleans & Northeastern	203	582,843	219,239	901,103	95,767	170,506	17,315	386,675	20,528	695,672	77.20	205,431	63,940	140,993	—79,123
New Orleans Great Northern	284	233,551	59,034	306,145	34,387	58,814	5,615	114,495	14,197	228,081	74.50	78,064	16,296	61,653	—27,073
New York Central	6,079	20,226,676	8,008,388	33,129,150	4,529,789	8,285,438	438,267	17,076,806	991,792	31,073,880	96.21	1,255,270	1,753,316	—501,083	—5,261,727
New York, Chicago & St. L.	571	1,901,103	123,973	2,107,793	361,334	475,091	79,832	1,332,586	78,912	2,334,281	110.75	—226,489	115,000	—341,489	—656,982
New York, N. Haven & Hartford	1,992	5,185,945	5,015,564	11,907,513	1,599,367	2,249,127	74,595	6,463,706	424,672	11,069,827	92.96	837,686	532,000	302,341	—2,433,362
New York, Ontario & Western	567	1,041,343	145,568	1,366,632	157,397	314,576	16,819	773,305	40,516	1,302,613	95.32	64,019	43,500	20,519	—178,780
New York, Phila. & Norfolk	112	482,491	140,233	701,507	70,023	162,853	15,729	433,432	22,046	726,977	103.63	—25,470	27,807	—53,277	—200,451
New York, Susq. & Western	135	372,756	81,821	509,474	61,544	80,043	3,940	378,130	12,777	536,381	105.28	—26,907	29,833	—56,741	—127,684
Norfolk & Western	2,085	8,173,031	1,264,137	9,864,097	1,212,774	2,597,224	118,130	4,095,805	214,984	8,269,188	83.83	1,594,909	544,000	1,049,236	—2,370,516
Norfolk Southern	907	532,171	178,228	769,442	121,785	117,252	13,035	366,124	38,578	656,970	85.38	112,472	31,623	80,837	—156,411
Northern Pacific	6,600	8,823,291	2,268,383	12,196,267	1,524,163	2,042,187	175,272	5,535,277	268,320	9,627,190	78.94	2,569,076	875,285	1,692,497	—2,090,580
Northwestern Pacific	507	348,642	244,880	662,937	128,732	84,438	8,972	269,544	19,270	511,258	77.12	151,679	41,894	109,778	45,316
Pennsylvania R. R.	5,284	22,920,712	10,953,322	38,396,009	6,852,242	11,398,481	519,044	22,101,970	1,258,475	42,874,332	111.66	—4,478,323	1,687,602	—6,171,168	—10,395,721
Peoria & Pekin Union	19	37,619	11,681	175,660	23,443	33,655	28	136,133	6,407	199,667	113.67	—24,006	18,950	—42,957	—39,824
Pere Marquette	2,245	2,035,142	436,335	2,804,553	538,274	664,633	62,465	1,661,287	122,275	3,054,620	108.92	—250,067	102,464	352,914	—534,144
Philadelphia & Reading	1,126	7,132,813	1,154,491	8,973,934	886,320	2,384,474	96,838	5,366,707	206,116	8,967,000	99.92	6,934	275,406	268,528	—3,261,788
Pittsburgh & Lake Erie	224	3,054,113	330,926	3,691,724	693,596	882,396	28,944	1,515,616	79,837	3,209,511	86.94	482,214	226,400	255,813	—545,366
Pitts. & Shawmut	94	169,302	7,731	178,990	37,388	49,074	2,117	68,143	6,313	163,035	91.09	15,955	4,981	10,974	—54,915
Pittsburgh & West Va. Ry.	63	190,681	16,639	231,070	36,119	65,166	1,988	99,267	14,537	234,068	102.30	—2,998	28,220	31,219	.....
Port Reading	21	117,393	.....	187,231	6,009	41,328	80	219,356	3,208	269,982	144.20	—82,750	19,222	—101,973	—115,972
Rich., Fred. & Pot.	87	286,079	382,537	762,866	43,492	100,972	7,248	315,239	17,611	492,214	64.52	270,652	25,277	245,352	33,668
Rutland	415	334,776	149,325	572,655	73,082	139,771	15,728	345,054	15,964	591,929	103.37	—19,273	36,461	—55,739	—134,581
Seaboard	3,561	3,209,648	1,498,990	5,233,428	574,991	1,022,551	145,431	2,360,685	152,566	4,299,765	82.16	933,663	239,436	693,370	—759,264
South Buffalo Ry. Co.	35	79,206	.....	155,941	20,608	30,120	1,223	118,689	3,218	173,857	112.49	—17,916	2,800	—20,716	—72,529
Spokane International Ry. Co.	163	101,390	25,143	131,009	17,491	12,444	3,062	46,913	7,449	87,363	66.68	43,646	6,404	37,203	14,077
Spokane, Portland & Seattle	554	894,203	321,642	1,294,261	109,469	99,522	12,469	378,772	31,333	639,883	49.44	654,379	144,000	510,262	130,296
St. Joseph & Grand Island	257	334,927	60,255	416,910	95,267	51,477	6,211	179,310	13,087	346,031	83.00	70,880	17,213	53,652	—13,304
St. Louis, Merchant's Bridge Terminal	9	.....	783	442,083	67,082	36,793	1,871	323,717	10,748	440,211	99.57	1,872	16,000	—14,128	—109,265
St. Louis, San Francisco	4,761	5,170,407	2,725,745	8,577,163	1,173,143	2,019,380	109,959	3,830,653	270,254	7,399,955	86.28	1,177,208	447,368	727,079	—1,593,979
St. Louis Southwestern	1,783	2,296,827	591,970	3,056,016	354,331	526,887	93,579	1,057,838	110,306	2,146,321	70.19	909,695	163,827	745,484	—56,286
San Antonio & Aransas Pass	732	478,361	157,263	702,580	88,413	119,315	14,395	341,891	30,485	594,044	84.55	108,536	30,000	78,067	121,190
Southern	6,892	8,994,179	4,730,121	15,052,444	1,763,017	2,756,804	262,918	6,240,256	361,919	11,477,194	76.25	3,575,251	608,630	2,963,166	—420,741
Southern in Mississippi	278	119,838	90,950	229,827	42,916	20,004	4,128	102,994	7,723	177,765	77.35	52,062	18,000	34,057	30,045
Southern Pacific	7,102	14,349,035	5,486,592	21,692,069	2,521,525	3,729,606	318,199	9,718,670	536,874	17,186,124	79.23	4,505,945	1,158,285	3,344,024	—1,437,166
Staten Island Rapid Transit	23	47,995	84,447	144,987	43,616	35,274	2,221	122,943	13,258	217,313	149.88	—72,326	18,000	—90,341	—111,707
Tennessee Central	292	197,444	61,248	375,501	43,286	59,916	7,142	150,581	14,552	275,477	73.36	24	10,730	—10,708	—49,397
Terminal R. R. Ass'n of St. Louis	36	.....	4,678	526,329	116,072	50,108	1,931	265,560	12,047	451,527	85.79	74,802	57,433	17,369	—200,126
Texarkana & Ft. Smith	81	135,435	28,363	178,989	18,152	10,348	4,573	75,741	7,334	115,406	64.48	63,584	18,304	45,279	—20,416
Texas & New Orleans	469	766,176	263,606	1,125,237	100,911	215,590	15,049	400,706	22,955	793,324	70.50	331,913	46,000	285,532	—10,068
Texas & Pacific	1,946	2,547,851	956,343	3,801,340	454,508	575,077	68,031	1,648,511	131,582	2,904,541	76.41	896,799	173,872	721,525	—40,409
Toledo & Ohio Central	435	.....	828,938	992,854	216,331	314,177	13,385	613,490	23,900	1,184,679	129.32	—191,826	56,247	—248,081	—285,308
Toledo, Peoria & Western	247	138,709	63,444	213,167	34,639	62,365	4,885	115,615	8,773	226,277	106.15	—13,111	17,000	—30,111	—33,452
Toledo, St. Louis & Western	454	769,579	69,804	881,816	174,642	221,897	30,346	418,198	18,532	863,526	97.93	18,290	52,200	—33,910	—224,007
Trinity & Brazos Valley	368	141,179	17,417	170,528	46,816	67,229	3,721	84,137	15,200	217,103	127.31	—46,575	12,578	—59,154	16,491
Ulster & Delaware	128	53,588	23,228	102,203	17,700	20,704	1,809	75,689	6,579	123,458	120.80	—21,255	9,200	—30,451	—21,646
Union R. R. of Baltimore	8	191,200	107,539	303,112	17,212	.....	.....	22,192	5,992	45,393	14.98	257,719	16,611	241,107	—9,684
Union R. R. of Pennsylvania	35	.....	.....	630,540	83,501	389,271	470	569,113	11,508	1,053,827	167.13	—423,287	10,853	—434,140	—416,484
Utah Railway	100	208,343	1,206	210,319	17,135	19,998	194	48,760	11,029	97,115	46.18	113,204	6,338	106,866	*
Vicks., Shreve. & Pac.	171	231,702	117,447	398,749	37,033	67,212	11,034	130,849	13,187	264,952	66.45	133,797	18,000	115,797	5,305
Virginian	518	1,252,486	81,674	1,430,198	147,364	294,604	12,689	614,342	30,590	1,102,841	77.11	327,358	80,250	247,099	—316,706
Wabash	2,519	3,314,271	1,120,382	4,927,915	650,582	1,169,141	133,048	3,158,848	157,255	5,304,770	108.65	—376,855	210,471	—587,789	—1,783,712
Wash. Sou.	35	104,584	233,093	427,098	30,792	59,753	2,713	165,004	8,209	269,685	63.14	157,413	10,945	146,437	—10,326
West Jersey & Seashore	359	305,796	551,459	940,113	298,092	205,092	15,982	634,357	35,364	1,199,347	127.57	—259,233	81,136	—342,481	219,100
Western Maryland	707	1,547,658	134,877	1,822,135	302,954	591,917	38,178	937,153	62,474	1,953,737	107.22	—131,602	86,400	—218,002	—764,290
Western Pac.	1,097	1,336,326	168,982	1,576,211	220,909	225,568	41,766	550,495	42,574	1,102,294	69.97	473,917	82,126	391,702	173,953
Western Ry. of Ala.	133	205,722	115,517	349,580	47,239	67,953	7,508	2,666	5,030	256,900	73.48	92,680	12,000	80,680	34,760
Wheeling & Lake Erie	512	1,216,106	58,715	1,384,712	211,504	384,797	13,558	723,317	47,012	1,384,875	100.01	—163	95,960	—96,196	—351,797

* Was a lessor company.

Railway Revenues and Expenses

The Interstate Commerce Commission has given out the following partial summary of railway returns for March and three months of the year, covering the reports of 114 large roads. Only partial summaries have thus far been given out for January and February as there has been a delay on account of a change in the monthly report form. The preliminary figures are as follows:

OPERATING REVENUES, EXPENSES AND INCOME OF 114 LARGE ROADS

Item	United States		Eastern District		Southern District		Western District	
	1918	1917	1918	1917	1918	1917	1918	1917
	FOR THE MONTH OF MARCH							
1. Average No. of miles operated	165,265.38	164,727.19	48,319.97	48,375.65	32,483.54	32,255.93	84,461.87	84,095.61
2. Railway operating revenues	$284,130,692	$248,538,067	$141,558,300	$126,434,894	$46,702,213	$38,024,217	$95,870,179	$84,078,956
3. Railway operating expenses	221,794,995	179,938,080	117,464,006	96,687,121	32,467,446	25,316,762	71,863,543	57,934,197
4. Net revenue from railway operations	62,335,697	68,599,987	24,094,294	29,747,773	14,234,767	12,707,455	24,006,636	26,144,759
5. Railway tax accruals (excluding "war taxes")	11,639,552	10,964,684	5,174,355	5,102,118	1,776,948	1,695,434	4,688,249	4,167,132
6. Uncollectible railway revenues	67,843	43,216	7,856	11,048	8,987	15,473	51,000	16,695
7. Railway operating income	50,628,302	57,592,087	18,912,083	24,634,607	12,448,832	10,996,548	19,267,387	21,960,932
8. Equipment rents	*2,233,110	*2,077,911	*2,901,850	*3,221,246	*44,694	1,005,152	713,434	138,183
9. Joint facility rent (debit)	933,065	933,528	427,220	443,632	189,530	139,391	316,315	350,505
10. Net of items 7, 8 and 9	47,462,127	54,580,648	15,583,013	20,969,729	12,214,608	11,862,309	19,664,506	21,748,610
11. Revenues per mile	1,719	1,509	2,930	2,614	1,438	1,179	1,135	1,000
12. Expenses per mile	1,342	1,092	2,131	1,999	1,000	785	851	689
13. Net revenue per mile	377	417	499	615	438	394	284	311
14. Railway tax accruals per mile	71	67	107	106	55	53	56	50
15. Uncollectible revenues per mile	.....	.....	.....	.....	.....	.....	.....	.....
16. Operating income per mile	306	350	392	509	383	341	228	261
17. Equipment rents per mile	*14	*13	*60	*67	*1	31	8	2
18. Jt. facility rent per mile (Dr.)	5	6	9	9	6	4	4	4
19. Net of items 16, 17 and 18	287	331	323	433	376	368	232	259
	FOR THE THREE MONTHS ENDING WITH MARCH							
20. Average No. of miles operated	165,257.88	164,733.36	48,310.34	48,376.05	32,481.46	32,255.95	84,466.08	84,101.36
21. Railway operating revenues	$726,011,329	$688,173,857	$350,717,024	$343,739,499	$123,032,156	$108,209,135	$252,262,149	$236,225,223
22. Railway operating expenses	637,784,608	512,775,369	336,573,751	273,820,240	94,168,159	72,890,341	207,042,698	166,064,779
23. Net revenue from railway operations	88,226,721	175,398,488	14,143,273	69,919,250	28,863,997	35,318,794	45,219,451	70,160,444
24. Railway tax accruals (excluding "war taxes")	33,982,323	31,274,945	15,217,269	14,044,859	5,253,445	4,963,249	13,511,609	12,266,837
25. Uncollectible railway revenues	135,737	112,144	31,451	42,304	25,755	27,015	78,531	42,825
26. Railway operating income	54,108,661	144,011,399	*1,105,449	55,832,087	23,584,797	30,328,530	31,629,311	57,850,782
27. Equipment rents	*4,616,424	*6,323,260	*8,123,152	*10,004,249	193,090	2,866,584	3,313,638	814,405
28. Joint facility rent (debit)	2,896,568	2,819,387	1,356,296	1,297,165	459,545	413,424	1,080,727	1,108,798
29. Net of items 26, 27 and 28	46,595,669	134,868,752	*10,584,895	44,530,673	23,318,342	32,781,690	33,862,222	57,556,389
30. Revenues per mile	4,393	4,178	7,260	7,105	3,788	3,355	2,986	2,809
31. Expenses per mile	3,859	3,113	6,967	5,660	2,899	2,260	2,451	1,975
32. Net revenue per mile	534	1,085	293	1,445	889	1,095	535	834
33. Railway tax accruals per mile	206	190	315	290	162	154	160	146
34. Uncollectible revenues per mile	.....	.....	.....	1	1	1	1	.....
35. Operating income per mile	328	875	*22	1,153	726	940	374	688
36. Equipment rents per mile	*28	*39	*169	*207	6	89	39	10
37. Jt. facility rent per mile (Dr.)	18	17	28	27	14	13	12	13
38. Net of items 35, 36 and 37	282	819	*219	920	718	1,016	401	685

*Debit item.

Note—There are included in this statement 56 roads in the Eastern District, 22 in the Southern District, and 36 in the Western District. Total, 114 roads.

The Pacific Great Eastern Agreement

The controversy between the province of British Columbia and the promoters of the Pacific Great Eastern which has been a cause for extended litigation has been settled recently by an agreement signed by the parties involved. The Pacific Great Eastern is a line projected from Vancouver in a northerly direction about 400 miles to Prince George, a station on the Grand Trunk Pacific about 450 miles east of Prince Rupert. The company was incorporated in 1912, the promoters including among others, members of the contracting firm of Foley, Welch & Stewart, which firm agreed to build the line, and D'Arcy Tate, who had secured a traffic agreement with the Grand Trunk Pacific upon a guarantee of bonds by the British Columbia Government. Construction was started but the company got into financial difficulty and received further assistance from the government. In 1916 further assistance was asked but owing to a change of administration this request led instead to an extended investigation that disclosed a series of irregularities in the management of the project. These consisted primarily of overpayments estimated at $5,700,000 and it was found that it would cost $12,000,000 more to complete the line, which the contractors had undertaken to build upon a guarantee of $20,160,000 in bonds. This investigation resulted in the issuance of writs against the Pacific Great Eastern, the subsidiary companies and all others concerned, for an accounting, for an injunction restraining them from proceeding with the work, for specific performance of the original agreement and for damages for breach of agreement. These were issued on May, 1917, since which time negotiations have been in progress, which led to an agreement signed on February 22, between the British Columbia Minister of Railways and the various individuals forming the Pacific Great Eastern and the subsidiary companies.

This agreement virtually gives the province of British Columbia complete possession of the entire railway, and the property and credits of the subsidiary companies, and provides that all claims by the several parties named against either of the companies shall be released to the government forthwith, and upon the performance of these terms the government will release the other parties from their engagement. Detailed provisions are made for the release of the several parties upon the fulfillment of their obligations in accordance with one or more options. The agreement is not to become operative until ratified by the legislature and the several parties have agreed, on request of the Province, to apply for the necessary legislation.

The Government has outlined a plan for the future of the railway. The first section of the line from North Vancouver is Whytecliffe, 13 miles, will be placed in good operating condition as soon as possible and connected with the North Vancouver lines of the British Columbia Electric Railway. The completed line from Squamish to Clinton, 167.7 miles, will have to be put in good condition, while the line from Clinton to Prince George, 185 miles, will be completed as speedily as possible.

Official Guide Fifty Years Old

The Official Railway Guide announces that with its current issue (May) it completes the 50th year of its publication. The first number was that for June, 1868. It was then called The Travelers Official Guide, and was published at No. 644 Broadway, New York City. Edward Vernon was the editor.

The issue for June, 1868, shows no road west of the Missouri River except the Union Pacific, which was in operation to Cheyenne, and the Central Pacific, building eastward from Sacramento, had arrived as far as Cisco—92 miles.

The size of the page at that time was 6 x 4½ inches, but the Guide has now become undoubtedly the largest monthly publication in the world.

Not only do its pages contain the history of the roads themselves, but they have a human interest. To a young man entering upon railroad work it has been one of the first signs of success when he achieved a rank which entitled his name to appear in The Official Guide; and as he advanced his name mounted, until many times it has reached the top line. The files of The Guide contain the most complete record of many phases of transportation development, particularly in the combination of through routes, the accelerated time of trains, improvements in comfort, and many other features which distinguish American travel. So far as is known, but one complete set exists. That has been placed in the New York Public Library, where future historians may have access to it.

Loyal L. & N. Employees

The letter of President Milton H. Smith, of the Louisville & Nashville, to the employees of the road, calling for patriotic devotion to their duties noticed in the *Railway Age* of April 12, page 997, was responded to by a committee of employees including representatives from all branches of the service, in a manifesto, expressing intelligent and earnest loyalty, which is quite unusual. This letter, addressed to President Smith, and signed J. D. Keen, chairman, reads in part as follows:

"We note with pleasure that you have regarded our loyalty and efficiency in the past, and you have urged us to maintain these distinctive characteristics as we now are elevated to a position of greater importance in the direct service of our government in time of war.

"Practically the entire organization of our company is composed of those who from their boyhood days have grown up in the service of the L. & N. Under your thoughtful leadership both officers and employees have been methodically trained and thoroughly skilled. . . . As loyal employees, we have always gladly shared the misfortunes of our company, whenever the dark clouds of commercial depression lowered thick and heavy about us; but we have all rejoiced when the sunlight of prosperity returned. In comparing our wages with the dividends some of us may have felt at times that the divisions made were not equitable; but whether this be true or not, you may rest assured that the great majority of us have been able to understand that you were prudently providing not only for our vast army of employees, but also for meeting the many-phased conditions of our natural growth and to provide reasonable accommodations in deference to the ever-changing demands of a restless public. . . .

"While vast sums of money have been spent in driving our new extensions through the wilderness of the South, you have lifted thousands of miles of our old road out of the mud of the low and treacherous lands, and placed it upon a firm bed of good ballast, with heavy ties and rails. You have built beautiful stations at all our important terminals, and have encouraged the habitation and cultivation of boundless tracts of rich farm lands.

"As president of the Louisville & Nashville you have wisely developed and practically completed a vast structural and functional railway system of inestimable value to the civil life of our entire country; a grand monument to a clear perception, a steadfast purpose, boundless energy, a good heart and great executive ability.

"The timely act of our government in providing a suitable railroad commission and adjustment board, in the unusual circumstances, delegated to adjust wages and working conditions, seniority, etc., we look upon as wise. It will greatly reduce if not entirely eliminate the possibility of dissatisfaction. And, in the language of the director general, every employee may now devote himself unreservedly and patriotically to his work with the assurance that his rights and interests will be justly dealt with. Your kindly letter to us will promote a better understanding, a fuller and more certain knowledge of our obligations, and a more enthusiastic loyalty in our new relations. We, with you, pledge ourselves to make, willingly, whatever patriotic sacrifices are required, to give steadfast co-operation, devoted and untiring service, and absolute loyalty to our government, that together we may all work for universal liberty and for a world made safe for Democracy."

Roadmasters' Association Work

Among the subjects which have been selected for committee investigation and report by the Roadmasters' and Maintenance of Way Association this year are the following:

Data on Mechanical Devices Used in Track Maintenance; J. B. Oatman, roadmaster, Buffalo, Rochester & Pittsburgh, Du Bois, Pa., chairman;

Labor Saving Devices; J. W. Powers, supervisor, New York Central, Rochester, N. Y., chairman;

Fencing, Including Cattle Guards, Farm Crossing Gates and Anchoring of Fences; Charles Newberg, roadmaster Chicago & North Western, Mayfair, Ill., chairman.

A paper will also be presented on Best Methods of Raising Track by George Beckingham, superintendent of track, Grand Trunk, Montreal, Que.

The convention will be held at the Auditorium Hotel, Chicago, on September 17, 18 and 19.

Traffic News

The United States Shipping Board announced, at Washington on May 2, that authority had been given for the construction of 50 new wooden barges for use in carrying coal to New England, each barge to be of 3,500 tons capacity.

The Kansas City Southern, the Texarkana & Ft. Smith, the Arkansas Western and the Poteau Valley have closed their commercial offices at New York City, Pittsburgh, St. Louis, San Antonio, Chicago, Dallas, Houston, and New Orleans.

A request for cheaper transportation for agricultural workers recruited by the United States Employment Service for distribution among agricultural communities has been filed by Louis F. Post, assistant Secretary of Labor, with the Railroad Administration.

The Louisville & Nashville announces the closing of its freight traffic offices in seventeen cities, namely, Augusta (Ga.), Buffalo, Cleveland, Chicago, Detroit, Dallas, Houston, Indianapolis, Jacksonville (Fla.), Kansas City, Little Rock, Macon, New York, Oklahoma City, Pittsburgh, Savannah and Tampa.

Between Houston, Tex., and Texas City, 43 miles, all freight in less than carloads must henceforth be sent by the Galveston, Houston & Henderson. Shippers offering freight at the stations of the other two roads, the Missouri, Kansas & Texas, and the Southern Pacific, will be directed to go to the freight station of the G. H. & H.

Special orders providing for the diversion of coal to New England, issued during the critical period of last winter, have been revoked by Fuel Administrator Garfield, this arrangement being superseded by the zone system. District representatives of the Fuel Administration will attend to the filling of emergency and other essential requirements for bituminous coal from the different producing fields.

The Railroad Commission of Georgia, after considering the subjects for many months, examining 35,000 pages of exhibits and taking thousands of pages of testimony, has announced its approval of a general advance in freight rates in that state, by percentages which are expected to increase gross freight revenues 8 per cent. It is said that intrastate freight constitutes only 15 per cent of the freight traffic of the Georgia Railroads.

The "Return Loads Bureau," of the Merchants' Association of New York city, established for the benefit of automobile trucks carrying freight to and from other cities, reports that hundreds of trucks have already been registered; and applications are constantly being received from out of town trucks for which loads are desired from New York. Somebody in New York is preparing to send trucks to Charleston, S. C., a distance of over 700 miles, to bring back 12 tons of merchandise.

The Post Office Department announces that aeroplanes, to carry letters, will begin making regular trips between Washington and New York on May 15. The price for letters is to be 24 cents an ounce, which will include special delivery. The announcement says that, during the early stages of the service, no attempt will be made to send out aeroplanes on days when rain or fog is likely to obscure the vision of the aviators. On such days the letters will be sent by special messenger, by railroad train, starting at 11 A. M.

The number of carloads of export freight on hand at North Atlantic ports on May 1, exclusive of coal and grain, was 28,588, of which 24,169 were consigned to the United States or to one of the Allied governments. The total compares with 41,202 cars on January 1, of which about three-fourths were government shipments. Of the total on the first of May, 13,256 carloads consisted of freight lying on the ground; 6,290 carloads were in warehouses and 9,042 were cars not yet unloaded. More than half of the 28,588 carloads reported on May 1 were at New York city.

The Merchants' Association, of New York city, has complained to the Railroad Administration, at Washington, that certain railroads have refused to accept silk for shipment from New York city, for the reason, it is said, that serious losses have been sustained because of thefts from freight cars. Some of the railroads have referred shippers to the express companies, but these do not wish to accept any lot of more than five bales.

Plans for the restriction of the movement of anthracite coal from the United States to Canada during the present coal year have been formulated by the United States Fuel Administration, in co-operation with the Fuel Controller of Canada. A representative of the Fuel Administrator attended a recent conference of representatives of coal operators, coal miners and railways in Canada at which this problem was discussed. Anthracite supplies to points in western Canada will be materially restricted. No American anthracite will be available for shipment to points west of Winnipeg.

Port and Terminal Improvement Commission

The United States Shipping Board has appointed a Commission on Port, Terminal, and Harbor Improvement, headed by Edward F. Carry, director of operations of the Shipping Board, and composed of representatives of the Army, Navy, Railroad Administration, and ship interests. The commission is designed to bring about a more economic arrangement and utilization of the ports and harbors of the Nation. In the interest of the army it will see to it that embarkation ports are so arranged that there will be adequate railroad, warehouse, and other facilities. It will deal with bunkerage facilities, which is of interest to the Navy and will work to avoid wasteful journeys of freight. The program that will be considered by the commission is designed to eliminate all waste motion.

In addition to Mr. Carry, as chairman, the commission includes B. L. Winchell, S. M. Felton, Capt. A. C. Hodgson, George S. Dearborn, J. H. Rossiter, and Edwin F. Gay.

Coal Production

In the week ended April 27 the government reported not only the largest rate of production of bituminous coal during the past 12 months, but the third successive week of rising production, according to the weekly bulletin of the Geological Survey. Production of bituminous coal, including lignite and coal made into coke, is estimated at 11,668,000 net tons, an increase of 5.7 per cent over the preceding week. The average production per working day is estimated at 1,946,000 net tons compared with 1,840,000 net tons last week, and 1,680,000 net tons during April, 1917.

Production for the month of April, 1918, is estimated at 46,478,000 net tons, an increase of 4,400,000 net tons or 10 per cent over April of last year. Production for the four months ended April, 1918, is estimated at 181,992,000 net tons, an increase of over 5,000,000 net tons or 3 per cent compared with the same four months of 1917. Anthracite shipments slightly increased during the week of April 27, 9 roads reporting 39,522 carloads compared with 39,130 during the preceding week.

The percentage of full time output during the week ended April 20 was 72.2, the largest for several weeks, and the percentage of full time output lost due to car shortage was 16.2.

The Interstate Commerce Committee of the Senate, through its chairman, Senator E. D. Smith, of South Carolina, has instituted a preliminary inquiry into what efforts the Railroad Administration is making to furnish immediate adequate supplies of cars at the mines in order to avert a possible coal shortage next winter. Senator Smith has conferred with representatives of the Railroad Administration and secured information on the subject, and it is planned to obtain similar statements from the Fuel Administration and these will be considered by his committee to determine whether public hearings ought to be held.

Up to April 27 the railroads had moved 82,000 more cars of coal, including both anthracite and bituminous, than in the corresponding period of the previous year, after making up for a considerable decrease during January and the first part of February.

Commission and Court News

Court News

Federal Employers' Liability Act

The New Jersey Court of Errors and Appeals holds that, in a widow's proceeding to recover compensation for the death of her husband under the State Workmen's Compensation Act, the burden was on the petitioner in the court of first instance to show affirmatively that the deceased was engaged in intrastate service not regulated by the federal act, a fact not to be presumed in the absence of proof. Lincks v. Erie (N. J.), 103 Atl. 176. Decided March 4, 1918.

Conductor's Duty to Passengers

In an action for damages alleged to have been caused by incorrect information given to the plaintiffs as to necessity for change of cars, the North Carolina Supreme Court holds that a conductor was not negligent in failing to volunteer information that the train did not stop at the station to which the plaintiffs had tickets, since he might assume that they intended to alight at a nearby station and continue the journey by a local train or otherwise.—Hutchison v. Southern (N. Car.), 95 S. E., 181. Decided December 7, 1917.

Limitation of Time for Actions Against Railroads

The New Jersey Court of Errors and Appeals holds that, under section 58 of the State Railroad Act of 1903, as amended in 1912, all actions accruing from injuries to persons caused by the wrongful act, neglect or default of a railroad, shall be commenced within two years after the cause of action accrued and not after; and the infancy of the person injured will not exempt him from the operation of this statutory rule.—Grabert v. Central of New Jersey (N. J.), 103 Atl., 212. Decided March 4, 1918.

Liability of Consignor for Freight Charges

Freight was shipped "charges collect," and a sight draft was drawn on the consignee, with bill of lading attached, which was paid. There was no special contract binding the carrier to collect the freight charges from the consignee. In the absence of this, the Georgia Supreme Court holds that although the carrier had delivered the goods to the consignee without payment of the freight, it could recover from the consignor.—Southern Cotton Oil Co. v. Southern (Ga.), 95 S. E. 251. Decided February 15, 1918.

Regulation of Station Stops

Where the facts showed that the train service otherwise furnished a county seat, California, Mo., was reasonable and adequate, the Missouri Supreme Court affirmed a judgment setting aside an order of the Public Service Commission, requiring a certain interstate mail train to stop there on flag. The train stopped there only to let off passengers from St. Louis. It was held that the fact, standing alone, that the train stopped on flag at certain smaller places was of little, if any weight. State ex rel. Mo. Pac. v. Commission (Mo.), 201 S. W., 1143. Decided March 5, 1918.

Recovery by Initial from Connecting Carrier

The Oklahoma Supreme Court holds that the words "required to pay," as used in the Carmack Amendment, authorizing recovery by the initial carrier against the connecting carrier of damages it may be required to pay the shipper for loss or injury occurring on the connecting carrier's line, mean asked to pay, or asked of right and by authority of law to pay, and do not require as a condition precedent to recovery that it shall have actually paid a judgment recovered against it by the shipper.—St. Louis & San Francisco (Okla.), 171 Pac., 467. Decided December 11, 1917. Rehearing denied March 19, 1918.

Injury to Employee—Scope of Employment

A telegraph operator, while off duty, was injured by a defect in a roadmaster's gasoline speeder on which he was traveling to a nearby town to procure food supplies for himself. The Montana Supreme Court holds that the railroad was not liable to him as employee, since he was going neither to nor from his work, was engaged on his own private business, and was actuated in his choice of ways to reach his destination by motives entirely personal. Nor was the company liable on the theory that he was a passenger. He was a mere licensee, to whom the company owed no duty to keep its speeder in good order or to operate it with caution. And the roadmaster, by his invitation, had no authority to create any higher relation of such employee to the railroad than a mere licensee, his duties being circumscribed and confined to maintenance of way. Even if it were assumed the operator was a guest the railroad's only duty would be to use reasonable care for his safety; and if the happening was not necessarily inconsistent with ordinary care the rule of res ipsa loquitur could not apply.—Glover v. Chicago, M. & St. P. (Mont.), 171 Pac., 278. Decided February 26, 1918.

Employers' Liability Act Decisions

The Iowa Supreme Court holds that a conductor of a work train unloading ties to repair a track used for interstate traffic is employed in interstate commerce and therefore within the act, although the train is operated along a route wholly within the state, and although at the time of the accident he was not engaged in distributing ties, but was returning from work in charge of the train.—Eley v. C. G. W. (Iowa), 166 N. W., 739. Decided March 18, 1918.

A railroad company contracted with T. to keep coal chutes from which its locomotives were supplied filled with coal and to keep the ashes cleaned out of a turntable pit. He employed his own assistants, one of whom was injured in the work and sued the railroad. The South Dakota Supreme Court held that the evidence showed that the railroad did not retain control over the time of T. or his helpers, or over the manner of doing the work, but only reserved control of the results, and the plaintiff was not employed by the railroad so as to make it liable under the federal Employers' Liability Act.—Polluck v. Minneapolis & St. Louis (S. Dak.), 166 N. W., 641. Decided March 8, 1918.

Contract to Complete Logging Line—Discrimination in Freight Rates

A railroad contracted to build and put in operation a line from a timber tract to a point on the main line. The road had until June 1 to finish construction of the line. The Tennessee Supreme Court holds that the construction of a line in which the curves were fully tied, but the straight portions of which were half tied, but which enabled an engine and cars with additional ties to be sent forward and to put it in condition to bear any traffic tendered by the lumber company, and where heavy mill machinery was hauled over the line early in April, and the road was thereafter steadily improved, it was constructed and placed in operation for general traffic; the word "constructed" having substantially the significance of the word "completed." The railroad contracted to transport lumber, etc., at a certain rate. The court holds that the shipper, if entitled to the part of the joint through rate paid by the connecting carriers to the railroad for originating traffic, would have an undue and forbidden preference over other shippers, and a contractual obligation that it should receive such distribution would not justify such discrimination; and it refused to enforce the contract.—Caroline Spruce Co. v. Black Mountain (Tenn.), 201 S. W., 154. Decided February 11, 1918.

Medical Attendance to Injured Employees

A foreman of track repairers, in attempting to board a moving freight train in the course of his employment, was thrown under the caboose, which cut off both his legs. His wife and several of his friends came up immediately after the injury and one of the friends went for the local doctor. They did not object when the conductor proposed to take the injured man in the caboose to a hospital some miles distant, without waiting for the doctor, and the injured man assented to this course. He subsequently died from his injuries. His wife sued the railroad, alleging that death was caused by the railroad's failure to permit the deceased to remain at the point where he was injured, at least until the local doctor arrived. The Kentucky Court of Appeals held that it was incumbent on the plaintiff to show with reasonable certainty that, if such course had been pursued the deceased's life could have been saved. With regard to the railroad's duty in such circumstances, the court made the following rulings. Where a railroad servant is injured and adult members of his family are present when the accident occurs, or come to him before his removal by the company, or at any time thereafter, and express a desire to take charge of him, the railroad should deliver over to them the care of the case and do what they advise; also the wishes of the injured person, if he is capable of understanding conditions, should be respected. When the conductor, believing that the man could have more skilful treatment at another town, took charge of the matter of removing him thereto, such assumption of control, though with the consent of the injured man and his wife, carried with it the duty to exercise the required care. What a railroad must do necessarily depends on the time, place, character of the injury and surrounding circumstances. It was held that the conductor exercised reasonable care to save the life of the injured man, thus performing the railroad's duty to him. Judgment for the defendant was affirmed.—Troutman's Admr. v. L. & N. (Ky.), 200 S. W., 488. Decided February 5, 1918.

What Amounts to Conversion of Goods Transported?

The rule as commonly stated is that a common carrier is liable in conversion for misdelivery or nondelivery of property intrusted to it for transportation, and that on the making of an adverse claim and demand by a third person the carrier assumes the risk of correctly deciding between the claimant and the shipper or consignee. The result of this is that, though the carrier is without adequate means of information, it will be held in conversion if it errs in its decision. In the statement of the rule it is generally recognized as productive of much hardship to common carriers impartial as between the contending parties and desirous only of discharging the duties imposed on them by law. It has been suggested as a possible relief that a carrier in such a position might file a bill of interpleader and bring the parties in to settle their own controversy, but difficulties of jurisdiction, the loss of market, the perishable character of the property, etc., would seem to impair its adequacy The hardship of the rule has resulted in adding the compulsion of legal process to the exceptions of "the act of God and the public enemies," and it is held that the carrier will be protected against the shipper or consignee if the property has been seized or taken from its possession by attachment, replevin, or search warrant at the instance of a third person. The carrier should, however, give notice of the proceeding. It is also settled that it will not be held liable should it decide correctly, and then voluntarily surrender the property to the adverse claimant who is in fact the true owner. The plaintiff in this case had owned and used hotel cars in its land business, and sold them to a third party, reserving title until the purchase-money notes were paid. Thereafter the plaintiff asserted a default. The purchaser, claiming to have paid in full, leased the cars for use in a traveling show. The railroad company, for a consideration, granted the lessee the use of the spur track near his residence as a space for storage of the cars; the agreement reserving to the railroad company no power or right of supervision. While the cars were on the storage track the plaintiff made formal demand therefor on the railroad. Thereafter the latter transported the cars for the lessee and redelivered them to him. The Circuit Court of Appeals, Eighth Circuit, holds that in view of the defendant's obligation as a common carrier to transport for any person it was not liable, for when the demand was made it had no control over the cars, and when it transported them it was not guilty of connivance with the lessee.—Atchison, T. & S. F. v. International Land, Etc. Co., 247 Fed., 265. Decided November 26, 1917.

Equipment and Supplies

The Government Orders

Complete information concerning the Railroad Administration's orders for 1,025 locomotives and 100,000 cars will be found on page 1169 of this issue.

After this article was in type, however, announcement was made of the appointment of a committee consisting of W. G. Phelps, purchasing agent of the Pennsylvania Lines West; W. C. Bower, purchasing agent of the New York Central Lines East, and H. C Pearce, general purchasing agent of the Seaboard Line, to arrange for the materials for the car and locomotive orders. The committee has held meetings with the producers and is working with the raw materials committees of the Council of National Defence. Whether the materials will be purchased by the government or by the car builders has not yet been determined.

Locomotives

THE ALABAMA & VICKSBURG has ordered 3 Mallet type locomotives from the Baldwin Locomotive Works.

THE ALTO CEDRO SUGAR COMPANY has ordered one Mogul locomotive from the American Locomotive Company.

THE FARROCARRILES DELNORTE DE CUBA have ordered five ten-wheel locomotives from the Baldwin Locomotive Works.

THE PENNSYLVANIA EQUIPMENT COMPANY, 1420 Chestnut street, Philadelphia, is in the market for one second-hand Mogul type locomotive, with 19 by 24 in. cylinders, and having a total weight in working order of 60 tons and a steam pressure of 180 lb.

Freight Cars

THE UNITED STATES NAVY is inquiring for 6, 50-ton flat cars.

THE ILLINOIS CENTRAL is inquiring for 7 10,000-gal. tank cars.

THE TODD INTERESTS, Gainesville, Tex., are inquiring for 200 tank cars.

THE MUTUAL OIL, Kansas City, Mo., is inquiring for 50 tanks of 8,000-gal. capacity.

THE GENERAL ELECTRIC COMPANY, Erie, Pa., is inquiring for 3 all-steel gondola cars.

THE MARCELL INTERESTS, Chanute, Kan., are inquiring for 15 10,000-gal. capacity tank cars.

THE ZIMMERMAN ALDERSON CARR COMMISSION COMPANY, Dallas, Tex., is inquiring for 10, 8,000-gal. tank cars.

THE AMERICAN INTERNATIONAL STEEL CORPORATION, New York, is inquiring for 25, 18-ton and 25 22-ton wooden flat cars for export to South America.

Miscellaneous

THE HOCKING VALLEY has awarded a contract to the Roberts & Schaefer Company for the installation of Robertson coaling conveyers at Toledo, Ohio, and Marion.

THE CHICAGO GREAT WESTERN has ordered from the Railroad Water & Coal Handling Company, of Chicago, a coaling station of 100-tons' capacity to be built at Talmadge, Ia.

THE PENNSYLVANIA RAILROAD has awarded a contract to the Roberts & Schaefer Company, engineers and contractors, Chicago, for the installation of a 300-ton, two-track, automatic electric, reinforced concrete locomotive coaling plant and two separate "RandS" gravity sand plants of concrete construction for installation at Kane, Pa. A contract has also been given to the same company for the construction of a concrete 100-ton coaling plant at Rainey Junction, Pa.

Supply Trade News

John J. Cummings, president of the McGuire-Cummings Manufacturing Company, Chicago, died on May 4.

The Union Switch & Signal Company announces the removal on May 1, of its Montreal office from 510 Canadian Express building to 803 McGill building.

F. E. Lauderbach, in charge of southern territory for the National X-Ray Reflector Company, with office at St. Louis, Mo., has resigned, and that office has been abolished.

The Certes Supply Company, St. Louis, Mo., has been appointed selling agent for the Burden staybolt and engine bolt iron, and iron rivets for St. Louis and territory tributary thereto.

The Southern Railway Supply & Equipment Company, St. Louis, Mo., announces the purchase from the Scarritt-Comstock Furniture Company of that company's car seat department, and the reorganization of that end of the business as the Scarritt Car Seat & Manufacturing Company.

J. M. Riordan, until recently sales engineer of the Grant Lees Gear Company, Cleveland, and formerly representing the Fellows Gear Shaper Company of Springfield, Vt., in the central states, is now connected with the sales organization of the Cleveland Milling Machine Company, 18511 Euclid avenue, Cleveland, Ohio.

Press G. Kennett, southern railway sales manager for the Flint Varnish & Color Works, with headquarters at St. Louis, Mo., has been appointed western railway sales manager, with headquarters at Chicago, succeeding **Rex W. Hudson,** resigned to engage in other business. **J. C. Jonas** has been appointed southern railway sales manager at St. Louis, succeeding **Mr. Kennett.**

The property and plants of the **Lehigh Foundry Company** and the **Lehigh Car, Wheel & Axle Works,** of Fullerton, Pa., have been merged into one organization, the **Fuller-Lehigh Company,** with its office and works at Fullerton, Pa. The properties of the two companies are adjoining and have been for a number of years under the same management. The change is one of name only. The executive personnel remains the same.

E. C. Peck, superintendent of the Cleveland Twist Drill Company at Cleveland, Ohio, has received an appointment as lieutenant-colonel in the engineering bureau of the ordnance department. Mr. Peck will have charge of the gages used in the production of munitions and kindred materials for the above department. His duties will be the supervision of design of gages and the settling of limits of variance which will be satisfactory to both manufacturer and the ordnance department itself.

D. R. Morris, assistant engineer of the valuation department of the New York Central (Buffalo and East), resigned May 1 to accept a position with the Federal Signal Company as sales engineer. Mr. Morris graduated from the Chicago Manual Training School in June, 1898, and entered the signal field on the Chicago & North Western July 9, 1898, remaining with this company for four years. The next six years were spent on signal construction with the General Railway Signal Company. From 1908 to August, 1912, he was with the Illinois Central as signal inspector and general foreman of construction; from August, 1912, to April 15, 1914, he was signal engineer of the El Paso & South Western, and from April 15, 1914, to June, 1916, he was with the Federal Signal Company and Protective Signal Manufacturing Company; he became connected with the New York Central in June, 1916. Mr. Morris will be located at the company's New York office.

Jesse Lowe, contracting engineer, died at his home in Chicago on April 17. Mr. Lowe was born at Omaha, Neb., on January 17, 1861, and graduated from the Rensselaer Polytechnic Institute, Troy, N. Y., in 1885. For a short time after his graduation he was assistant to the city engineer of Omaha, and assistant engineer in locating the Omaha Belt line and in the preliminary and location surveys of the Missouri Pacific west of Omaha. In 1886 he was located at Lincoln, Neb., as resident

engineer of the Missouri Pacific. From there he went to Birmingham, Ala., as assistant manager of the Birmingham Bridge & Bolt Works. In 1887 he formed a partnership at Omaha with Andrew Rosewater and George B. Christie for the purpose of engaging in civil engineering work. The following year the firm was dissolved and the firm of Christie & Lowe was organized for similar purposes. This firm was continued until 1913. Among the projects completed by this firm are the following: The cable street railways, Denver, Colo.; piers for the Bellefontaine Bluffs bridge over the Missouri river and the Harlem street culvert at St. Louis for the Keokuk & Northwestern; the Fullerton avenue loop at Chicago, the first underground trolley line in America, and the Fifth street railway in Washington, D. C. He also constructed two miles of the Chicago drainage canal and the controlling works, including the Great Bear Trap dam which regulates the flow of water from the Great Lakes to the Gulf. The firm did considerable other railroad and bridge work for lines in the Middle West and river and harbor improvement work for the United States government.

Trade Publications

SMOOTH-ON IRON CEMENT.—The sixteenth edition of the "Smooth-On" instruction booklet, which has just been issued, contains 144 pages, each one with an illustration showing in an interesting manner how the different "Smooth-On" iron cements are used for repairing purposes.

CLAM SHELL BUCKETS.—The Blaw-Knox Company, Pittsburgh, Pa., has just issued on attractive 24-page booklet, printed in colors, describing its single line clam shell buckets. The booklet describes the uses to which this bucket may be adapted and shows it in various positions. The book also contains data regarding weights, dimensions and clearances.

BALANCE DRAFT.—The Engineer Company of New York has issued bulletin 16 entitled "Balance Draft," giving an analysis of combustion conditions and boiler operation when nearly atmospheric pressure is maintained in the furnace chamber. Bulletin No. 18 issued by the same company explains in detail the advantages of balance draft and describes the apparatus necessary to maintain it.

BOILER METERS.—In bulletin No. 41, issued by the Bailey Meter Company, Boston, Mass., and entitled "How to Save Coal," there is considerable useful information regarding boiler capacity, efficiency and the amount of air necessary for complete combustion. Bailey meters give continuous records of steam flow, air flow and temperature variations and this bulletin points out the necessity of such records for efficient boiler operation.

TRUCK BATTERY CHARGING.—Publication No. 234, issued by the Cutler-Hammer Manufacturing Company, Milwaukee, Wis., is a six-page illustrated folder describing the C-H sectional battery charging equipment for industrial electric trucks, which has been extensively used in public and private garages. Two pages are devoted to illustrating a number of large and small equipments in industrial establishments, piers and railroad terminals.

"AFTER FIFTY YEARS."—The United States Switch Company, Eau Claire, Wis., has issued an elaborate 32-page book describing its automatic switch lock for the protection of facing point switches. The design and construction of this device are described in detail, as well as its service in high speed main lines extending over a period of more than six years. The book is attractively prepared and the information is presented in a concise manner.

PUMPS FOR CUTTING COMPOUND.—The Fulflo Pump Company, Cincinnati, Ohio, has recently issued a bulletin describing the impeller type of pump for the distribution of coolant which this company manufactures. It has also prepared for free distribution a booklet entitled "The Scientific Lubrication of Cutting Tools." This booklet gives a short history of cutting tool lubrication and describes the methods of application of cooling compounds which have been found most effective in increasing the life of tools.

INCREASED WAGES FOR MANCHURIAN RAILWAY EMPLOYEES.—Beginning with March 1 the employees of the South Manchuria Railway were granted a general increase in their wages.

Financial and Construction

Railway Financial News

CHESAPEAKE & OHIO.—See editorial comments elsewhere in this issue.

CHICAGO, BURLINGTON & QUINCY.—Howard Elliott of New York and Hale Holden have been elected directors for the term ending May 1, 1922. Mr. Elliott succeeds Maj. George T. Slade, who has gone to France in the United States military service.

MICHIGAN CENTRAL.—See editorial comments elsewhere in this issue.

NEW YORK CENTRAL.—See editorial comments elsewhere in this issue.

NEW YORK, CHICAGO & ST. LOUIS.—The board of directors was increased from thirteen to fifteen members at the annual meeting on May 1 by the election of F. H. Ginn and W. G. Turner, both of Cleveland, as new members. Mr. Turner is secretary of the company.

OZARK VALLEY.—The Bender Iron and Supply Company of Shreveport, La., purchased this 35-mile line on April 22 at Greenville, Mo., for the price of $188,500.

PITTSBURGH & WEST VIRGINIA.—Walter L. Haehnlen has been elected a director to succeed E. R. Tinker.

Railway Construction

ATLANTIC COAST LINE.—Work is to be started at once on the construction of a passenger station at Lakeland, Fla. The building will be two stories high, of brick construction, and the work will be carried out by the railroad company's forces.

ILLINOIS CENTRAL.—This company has awarded a contract to T. S. Leake & Co., Chicago, for the erection of an inbound freight house at East St. Louis, Ill., which will cost approximately $150,000. The building will be a one-story structure, 50 ft. by 612 ft., except for a section at the middle of the building 38 ft. by 28 ft., where second story space will be provided for office purposes. It will be a brick building, similar to the outbound freight house constructed last year.

The Illinois Central has also given a contract to the Ferro Construction Company, Chicago, for the erection of the steel superstructure of the new St. Charles Air Line bridge, Chicago, and the removal of the old bridge. The steel for the new bridge was purchased from the American Bridge Company late in 1916.

PENNSYLVANIA RAILROAD.—Contracts have been given to Cuthbert Brothers, Pittsburgh, Pa., for putting up the following buildings at West Brownsville, Pa.: 5-stall engine house and machine shop, 132 ft., by 120 ft., on concrete foundations, to be of frame construction, with wood block floor, metal siding and slag roof; storeroom, office and oil house, 30 ft. by 75 ft., two stories high, on concrete foundations, to be of frame construction, with wood block floor and metal siding, and a power plant, 40 ft. by 80 ft., on concrete foundations, to be of frame construction with metal siding. The total cost of the work will be about $65,000.

PHILADELPHIA & READING.—A contract has been given to C. P. Bower for rebuilding bridge No. 57 north of Hellertown, Pa., on the Bethlehem branch. The existing structure is a stone arch carrying two tracks. The new bridge is to be a concrete box structure with 26 ft. clear span over a public road with top reinforced with steel I-beams, and will carry 15 tracks.

BRITISH AMBULANCE TRAINS FOR U. S. ARMY.—The Great Western of England has supplied 104 locomotives and over 4,000 cars for the railways overseas. It is building two ambulance trains for the United States troops in Europe. Altogether, fifteen such trains are being or have been built by British railways.—*The Engineer, London.*

ANNUAL REPORTS

New York Central Railroad Company—Report of the Board of Directors to the Stockholders

To the Stockholders of

THE NEW YORK CENTRAL RAILROAD COMPANY:

The Board of Directors herewith submits its report for the year ended December 31, 1917, with statemepts showing the results for the year and the financial condition of the company.

The mileage covered by this report is as follows:

	Miles
Main line and branches owned	3,702.75
Leased line	1,527.02
Line operated under trackage rights	455.66
Total road operated	5,685.43

a decrease of 3.36 miles, due to remeasurements made in connection with Government Valuation and the abandonment of trackage rights over small pieces of road of other companies. On January 15, 1917, the Dolgeville and Salisbury Railway Company was merged with this company and its mileage, 3.70, added to the Dolgeville Branch. On June 23, 1917, the Cornwall Bridge Company conveyed all its property to The New York Central Railroad Company and its mileage was added to the Ottawa Branch. These two acquirements did not affect the total mileage operated but simply changed its classification.

The President of the United States, by his proclamation of December 26th and by virtue of the power vested in the Chief Executive in time of war by Acts of Congress, took possession and assumed control of the operation of the property of this company through the Secretary of War, at twelve o'clock, noon, on December 28, 1917, the accounts of the company to be continued to the end of the year.

SUMMARY OF FINANCIAL OPERATIONS AFFECTING INCOME

	1917	1916	INCREASE OR DECREASE
OPERATING INCOME	5,685.43	5,688.79	3.36
RAILWAY OPERATIONS	*miles operated*	*miles operated*	*miles*
Revenues	$216,267,517.22	$201,585,048.68	$14,682,468.54
Expenses	153,597,905.35	129,738,369.19	23,859,536.16
NET REVENUE FROM RAILWAY OPERATIONS	$62,669,611.87	$71,846,679.49	—$9,177,067.62
Percentage of expenses to revenues	(71.02)	(64.36)	(6.66)
Railway taxes accrued	$11,239,638.42	$8,481,549.11	$2,758,089.31
Uncollectible railway revenues	19,395.51	17,906.84	1,488.67
RAILWAY OPERATING INCOME	$51,410,577.94	$63,347,223.54	—$11,936,645.60
MISCELLANEOUS OPERATIONS			
Revenues	$5,713.27	$1,758.59	$3,954.68
Expenses and taxes	5,969.43	4,964.80	1,004.63
NET REVENUE FROM MISCELLANEOUS OPERATIONS	—$256.16	—$3,206.21	$2,950.05
TOTAL OPERATING INCOME	$51,410,321.78	$63,344,017.33	—$11,933,695.55
OTHER INCOME			
Joint facility rent income	$3,148,788.33	$3,079,952.01	$68,836.32
Income from lease of road	107,113.68	115,554.49	—8,440.81
Miscellaneous rent income	753,369.53	666,998.86	86,370.67
Miscellaneous non-operating physical property	628,965.02	515,630.71	113,334.31
Separately operated properties—profit	626,807.62	4,350,787.35	—3,723,979.73
Dividend income	7,464,993.74	11,099,697.29	—3,634,703.55
Income from funded securities	470,715.96	476,467.36	—5,751.40
Income from unfunded securities and accounts	2,209,506.46	2,235,811.67	—26,305.21
Miscellaneous income	52,443.75	82,529.27	—30,085.52
TOTAL OTHER INCOME	$15,462,704.09	$22,623,429.01	—$7,160,724.92
GROSS INCOME	$66,873,025.87	$85,967,446.34	—$19,094,420.47
DEDUCTIONS FROM GROSS INCOME			
Hire of equipment—debit balance	$2,480,451.64	$2,200,651.72	$279,799.92
Joint facility rents	1,178,790.89	1,147,576.27	31,214.62
Miscellaneous rents	680,431.99	678,978.39	1,453.60
Miscellaneous tax accruals	131,165.20	116,557.81	14,607.39
Rent for leased roads	6,462,350.03	6,354,580.50	107,769.53
Interest on funded debt	29,099,071.94	28,871,299.62	227,772.32
Interest on unfunded debt	762,807.02	617,035.95	145,771.07
Amortization of discount on funded debt	344,954.32	255,816.00	89,138.32
Maintenance of investment organization	3,066.77	2,674.70	392.07
Other deductions	130,716.23	63,057.98	67,658.25
TOTAL DEDUCTIONS FROM GROSS INCOME	$41,273,806.03	$40,308,228.94	$965,577.09
NET CORPORATE INCOME	$25,599,219.84	$45,659,217.40	—$20,059,997.56
DISPOSITION OF NET INCOME			
Dividends declared—5 per cent	$12,479,602.50	$12,466,611.25	$12,991.25
To equipment depreciation account	.....	2,500,000.00	—2,500,000.00
To sinking funds	115,563.45	.....	115,563.45
SURPLUS FOR THE YEAR CARRIED TO PROFIT AND LOSS	$13,004,053.89	$30,692,606.15	—$17,688,552.26

Profit and loss account

Balance to credit of profit and loss (free surplus) on December 31, 1916		$65,282,934.36
Additions:		
Surplus for the year 1917	$13,004,053.89	
Sundry deferred credits and adjustments	463,933.94	
Profit on road and equipment sold	305,485.55	13,773,473.38
		$79,056,407.74
Deductions:		
Expenses in connection with issue of capital stock	$32,456.21	
Discount, expenses and commission account issue of various securities	222,298.60	
Depreciation prior to July 1, 1907, on equipment retired during 1917	596,493.56	
Cash advances to Clearfield Bituminous Coal Corporation	309,244.64	
Loss on sale of bonds of Sunday Creek Coal Company	1,077,849.00	
Federal Government Income tax (including leased lines) for the year 1916, paid in 1917	1,005,239.65	
Abandoned property	263,453.83	
Charging off various uncollectible accounts and sundry adjustments of accounts	304,170.51	3,811,206.00
BALANCE TO CREDIT OF PROFIT AND LOSS (FREE SURPLUS) ON DECEMBER 31, 1917		$75,245,201.74

By action of the several State Commissions having jurisdiction, authority was given for the issue of $25,000,000 of the capital stock of the company to reimburse its treasury for expenditures on capital account. Of the amount so authorized, however, only $258,900 was actually issued during the year.

Authority was obtained from the Public Service Commissions of the states of Illinois, Michigan, New Jersey and New York in the months of April and May, 1917, for the issue of $10,000,000 of this company's Refunding and Improvement Mortgage bonds, Series A, and authority from the same commissions was obtained in September for the issue of a further $10,000,000 of bonds of the same series. The $20,000,000 of bonds so authorized, and which will bear interest at the rate of 4½ per cent per annum, have been executed and pledged as collateral for $15,000,000 of two-year Collateral Trust Gold notes, due September 15, 1919, bearing interest at the rate of 5 per cent per annum, payable semi-annually on March 15th and September 15th.

The New York Central Railroad Equipment Trust of 1917, authorized by the Board of Directors on October 19, 1916, has become effective and, of the equipment provided for in the agreement, 16 steam and 9 electric locomotives, 4,000 steel underframe box cars and 3,000 steel coal cars have been delivered. In February $8,205,000 of the certificates, bearing interest at the rate of 4½ per cent, were sold at a small premium. Since that time it has been found impossible to secure a satisfactory market for the certificates, and in order to procure equipment as needed this company has purchased, at par, $1,305,000 of the certificates, of which $500,000 were pledged as security for short-term loans and $805,000 carried in the treasury of the company. On December 31st, $87,000 of these certificates were redeemed.

There has been no long term debt matured during the year, but the usual installments on the various equipment trusts have been paid.

The changes in the funded debt of the company are shown in the following statement:

Amount as reported at the beginning of the year		$672,929,007.38
which has been increased as follows:		
Refunding and Improvement Mortgage bonds, Series A, nominally issued and pledged as collateral for notes	$20,000,000.00	
Two-year Collateral Trust Gold notes	15,000,000.00	
Mortgage, East Cambridge Land Company	100,000.00	
Equipment Trust of 1917 certificates, $9,510,000 of which $1,305,000 were purchased by the company, $500,000 of them being pledged as collateral for short term loans	9,510,000.00	
a total increase of		$44,610,000.00
and has been reduced as follows:		
Payments falling due during the year and on January 1, 1918, on the company's liability for certificates issued under equipment trust agreements as follows:		
N Y C Lines Trust of 1907, installment due November, 1917	$1,492,884.74	
N Y C Lines Trust of 1910, installment due January, 1918	1,406,413.74	
N Y C Lines Trust of 1912, installment due January, 1918	688,398.90	
N Y C Lines Trust of 1913, installment due January, 1918	742,117.61	
Boston & Albany Trust of 1912, installment due October, 1917	500,000.00	
N Y C R R Co Trust of 1917, installment due January, 1918	634,000.00	
and by transfer of trust locomotives to the Michigan Central Railroad Company	192,106.20	
a total decrease of		$5,655,921.19
making the net increase during the year		$38,954,078.81
leaving the funded debt on December 31, 1917, at		$711,883,086.19

Since the date of the annual meeting on January 24, 1917, the number of stockholders has grown 5,530, the total number at the end of the year being 27,102, of whom 26,771 are in the United States and 331 abroad. The par value held by those here is $247,579,960 and by those abroad $2,269,400, the average holdings being 92½ and 68½ shares respectively. In 1915 the numbers reported were 22,270 here and 2,772 abroad, the general average holding being, appoximately, 100 shares while now it is 92 shares.

The great increase in the cost of labor and material is reflected in the heavy operating expenses of 1917, which more than absorbed the added revenue for the year. This, together with decreased returns from subsidiaries and investments, heavier taxes and added charges for interest on debt, reduced the company's net corporate income, as compared with the year 1916, by $20,059,997.56.

In the operation of the Pension Department 233 employees were retired and placed upon the pension roll: of these retiremnts 128 were authorized because of the attainment of seventy years of age, and 105 because of total and permanent physical disability. 180 pensioners died during 1917, and at the close of the year 1,527 retired employees were carried upon the pension rolls. The average monthly pension allowance of these is $25.78, and the total amount paid in pension allowances during the year was $464,379.37.

Expenditures during the year for improvements on property were as follows:

Improvements on owned property, used in operation, and cost of acquirement of Dolgeville & Salisbury Railway Company and Cornwall Bridge Company	$13,878,381.55
Equipment purchased and acquired, less equipment retired and transferred	15,973,048.32
Improvements on leased property	3,737,044.15
Improvements on miscellaneous physical property	682,399.46
the net increase in property investments, as shown in detail on other pages, during the year 1917, being	$34,270,873.48

The New York Central Railroad as constituted on December 31, 1917, was in operation three years. During these three years the gross revenue increased about one-half and the net income was about tripled. The percentage of gross revenue saved for net corporate income in 1914 was 6.1 per cent and in 1917 was 11.8 per cent.

A brief synopsis of the relative balance sheets of January 1, 1915, and December 31, 1917, is as follows:

Assets	January 1, 1915	December 31, 1917
Road and equipment	$620,480,100	$694,619,200
Improvements on leased property	82,942,900	92,132,200
Miscellaneous physical property	6,011,900	8,680,600
Securities of affiliated companies	224,678,800	194,534,900
Securities of other companies	34,312,800	44,429,300
Total property	$968,426,500	$1,034,396,200
Current assets	69,161,200	84,827,800
Deferred and unadjusted assets	10,781,000	39,577,900
	$1,048,368,700	$1,158,801,900

Liabilities	January 1, 1915	December 31, 1917
Capital stock	$249,590,500	$249,849,400
Debt	703,413,900	729,185,500
Total capitalization	$953,004,400	$979,034,900
Current liabilities	32,805,500	46,552,700
Deferred and unadjusted liabilities	33,152,900	57,410,600
Surplus	29,405,900	75,803,700
	$1,048,368,700	$1,158,801,900

The abnormal conditions during the year and the curtailment of working forces by enlistments, conscription and resignations, placed an unusual burden of work upon the officers and employees of the company, which has been faithfully borne, and grateful acknowledgment of their service under trying conditions is hereby made.

For the Board of Directors,
ALFRED H. SMITH,
President.

CONDENSED GENERAL BALANCE SHEET, DECEMBER 31, 1917

ASSETS

INVESTMENTS			
Investment in road		$460,514,249.12	
Investment in equipment:			
Trust	$95,106,669.96		
Other	138,998,261.64	234,104,931.60	$694,619,180.72
Improvements on leased railway property			92,132,201.72
Miscellaneous physical property			8,680,603.82
Investments in affiliated companies:			
Stocks		$133,799,976.96	
Bonds		9,952,035.88	
Notes		36,266,355.57	
Advances		14,516,500.80	194,534,869.21
Other investments:			
Stocks		$31,139,974.32	
Bonds		1,046,544.52	
Notes		11,480,026.03	
Advances		750,039.12	
Miscellaneous		12,765.00	44,429,348.99
TOTAL INVESTMENTS			$1,034,396,204.46
CURRENT ASSETS			
Cash		$13,407,045.26	
Special deposits		934,098.51	
Loans and bills receivable		43,960.22	
Traffic and car-service balances receivable		6,514,277.27	
Net balance due from agents and conductors		9,616,893.84	
Miscellaneous accounts receivable		16,131,617.97	
Material and supplies		34,239,829.70	
Interest and dividends receivable		3,405,282.19	
Other current assets		534,840.31	84,827,845.27
DEFERRED ASSETS			
Working fund advances		$201,715.87	
Insurance and other funds		727,893.45	
Other deferred assets		4,749,890.72	5,679,500.04
UNADJUSTED DEBITS			
Rents and insurance premiums paid in advance		$37,769.17	
Discount on funded debt unamortized		6,883,107.79	
Other unadjusted debits		5,289,656.94	
Securities issued or assumed—unpledged		730,000.00	
Securities issued or assumed—pledged		20,500,000.00	
Securities acquired from lessor companies (per contra)		457,851.00	33,898,384.90
			$1,158,801,934.67

LIABILITIES

STOCK			
Capital stock			$249,849,360.00
LONG TERM DEBT			
Funded debt unmatured:	Nominally issued		
Equipment obligations	$1,218,000.00	$44,802,086.19	
Mortgage bonds	20,000,000.00	546,581,000.00	
Debentures		105,500,000.00	
Notes		15,000,000.00	711,883,086.19
CURRENT LIABILITIES			
Loans and bills payable		$17,302,450,00	
Traffic and car-service balances payable		6,330,806.54	
Audited accounts and wages payable		18,144,635.24	
Miscellaneous accounts payable		7,161,505.47	
Interest matured unpaid:			
Matured, payable January 1, 1918	$2,926,772.38		
Interest unclaimed	33,465.85	2,960,238.23	
Dividend declared, payable February 1, 1918		3,119,902.50	
Dividends matured unclaimed		186,635.05	
Funded debt matured unpaid		4,790.00	
Unmatured interest accrued		5,544,260.35	
Unmatured rents accrued		824,329.50	
Other current liabilities		2,275,557.56	63,855,110.44
DEFERRED LIABILITIES			
Liability to lessor companies for equipment		$14,715,322.52	
Miscellaneous		569,541.50	15,284,864.02
UNADJUSTED CREDITS			
Tax liability		$3,567,909.53	
Insurance and casualty reserves		580,065.50	
Operating reserves		1,192,914.99	
Accrued depreciation of equipment		33,159,007.29	
Liability to lessor companies for securities acquired (per contra)		457,851.00	
Other unadjusted credits		3,168,016.65	42,125,764.96
CORPORATE SURPLUS			
Additions to property through income and surplus		$93,628.85	
Sinking fund reserves		464,918.47	
Total appropriated surplus		$558,547.32	
Profit and loss—credit balance		75,245,201.74	75,803,749.06
			$1,158,801,934.67

DETAIL OF EXPENDITURES FOR IMPROVEMENTS TO PROPERTY

Improvements in station, yard and terminal facilities

Enlargement of yards:				
Air Line Junction	$24,639.30	Rockport	$401,973.25	
Carson	41,307.01	Dock Junction	109,034.57	
Cleveland	197,369.24	Wesleyville	115,015.91	
East Buffalo	56,465.62	West Albany	138,720.21	
Gardenville	757,225.72	Toledo	20,976.62	
				$1,862,727.45
Freight terminal, Cleveland				1,543,974.91
Freight house, etc., Detroit				328,219.43
Improvement of freight facilities, West Lockport				96,146.32
Extension of Clark Street freight house, Chicago				11,500.00
Extension to brick freight house, Jackson				11,777.90
Transfer building for American Express Company, Buffalo				320,324.33
Forty-ton crane for West Street yard, Syracuse				17,016.71
Increased ice house capacity, Rochester				11,206.35
New ice house, Elkhart				17,290.37
Sundry small improvements in freight yards and facilities				75,105.39
Passenger station, track changes, etc., Poughkeepsie				233,950.98
Passenger station, etc., Utica				46,095.75
Passenger station, etc., Massena Springs				22,774.60
Union passenger station, 162nd Street, New York, Putnam Branch				14,081.38
Sundry small improvements in passenger facilities				63,104.13
Engine terminal and additional yard facilities, River Rouge				155,074.28
Engine terminal and yard improvements, Collinwood				80,277.83
New engine house, etc., Belle Isle				183,923.59
New engine house, etc., North White Plains				71,062.64
New turntable, West Seneca				23,495.40
New turntable with tractor, Lyons				15,886.68
Shop equipment, Elkhart				87,020.92
Improvements at shops, West Albany				64,622.85
Improvements at shops, Collinwood				29,647.48
New heating boilers in locomotive shops, Depew				19,587.73
Improvements at car shops, Ashtabula				19,429.80
Improvements at steel car shops, Ashtabula				17,898.42
Improvements in heating system at shops, Collinwood				17,665.90
Improvements at shops, Depew				13,536.55
Electric appliance building, Collinwood				42,977.66
Two brick stacks at power house, Collinwood				15,749.98
Heating plant for coaches, Cleveland				16,905.34
Improvements in shop machinery and tools, various places				146,166.99
Improvements in power plants at shops, various places				13,661.88
Sundry small improvements in shop and engine house facilities				129,553.15
Coaling plant, Carson				32,954.84
Extension of coal storage plant, DeWitt				18,872.27
Coaling plant and cinder pit, Adrian				17,445.26
Coaling plant and track changes, Ashtabula				16,576.81
Improved water line at pumping plant, Nottingham				31,940.39
New pipe line and pump house, Fox Ridge				18,119.10
Improvements in water supply, Gibson				12,060.09
New water station, Sloan				11,597.44
Sundry small improvements in water and fuel station facilities				116,979.12
Assessments for public improvements, various places				74,134.77
Sundry small miscellaneous improvements				71,773.21
				$6,261,894.37
Less sundry adjustments				394,621.58
				$5,867,272.79

The Michigan Central Railroad Company—Seventy-second Annual Report

To the Stockholders of

THE MICHIGAN CENTRAL RAILROAD COMPANY:

The Board of Directors herewith submits its report for the year ended December 31, 1917, with statements showing the results for the year and the financial condition of the company.

The report covers the operation of the same mileage as the previous year, as follows:

	Miles
Main line and branches owned	1,182.84
Line jointly owned	.71
Leased lines	578.16
Lines operated under trackage rights	100.06
Total road operated (as shown in detail on another page)	1,861.77

There was no change in capital stock during the year, the amount authorized being $18,738,000.00 and actually outstanding $18,736,400.00.

The funded debt outstanding December 31, 1916, was		$53,915,193.92
It has been increased during the year by:		
Additional liability for certificates outstanding under 1913 trust, account of transfer of 10 locomotives from The New York Central Railroad Company		192,106.20
		$54,107,300.12
It has been decreased during the year by:		
Payment of pro-rata of installments on account of equipment trust certificates		
Trust of 1907, due November, 1917 (N. Y. C. Lines)	$260,425.45	
Trust of 1910, due January, 1918 (N. Y. C. Lines)	393,960.44	
Trust of 1912, due January, 1918 (N. Y. C. Lines)	151,710.90	
Trust of 1913, due January, 1918 (N. Y. C. Lines)	262,359.54	
Trust of 1915, due October, 1917 (M. C. R. R.)	300,000.00	1,368,456.33
Total funded debt outstanding December 31, 1917		$52,738,843.79

Certificates were issued under the Michigan Central Railroad Equipment Trust Agreement of 1917, to an aggregate amount of $4,845,000.00, but as these were concurrently acquired by the company, there is no change in the funded debt in this connection.

The changes in the road and equipment account during the year, and as shown in detail on another page, were as follows:

The amount charged to December 31, 1916, was		$86,134,182.07
Expenditures during the year, for additions and betterments—road		1,718,723.25
Cost of equipment acquired under trust agreements	$6,144,861.47	
Excess cost of new equipment purchased, and additions and betterments to equipment over value of equipment retired	746,428.67	6,891,290.14
Total amount charged to road and equipment December 31, 1917		$94,744,195.46

The changes during the year in the account showing amount of improvements on leased railway property, and as shown in detail on another page, were as follows:

The amount charged to December 31, 1916, was	$2,241,578.40
Expenditures during the year, for additions and betterments —road	288,182.02
Total amount charged to December 31, 1917	$2,529,760.42

At a meeting held on February 7, 1917, the stockholders authorized the execution of a Refunding and Improvement Mortgage, to be dated January 1, 1917, to secure the company's now outstanding debentures of 1909, amounting to $7,634,000.00, and to secure equally and ratably with the debentures, bonds to be issued under the mortgage to an amount not exceeding $100,000,000.00. By the terms of the mortgage, the Board of Directors is given the power to authorize the issue of bonds in series, maturing on such dates not later than January 1, 2017, and bearing interest at such rates as shall be fixed and determined by the Board for the purposes specified in the mortgage; and it is provided that when the amount issued for the purposes other than the refunding of debentures or prior debt shall be $10,000,000.00, no additional amount of bonds shall be issued in respect of work done or of property acquired, in any amount exceeding 70% of the cost of such work or property. The execution of the mortgage and the issuance thereunder of $8,000,000.00 of bonds have been authorized by the Michigan Railroad Commission and the Public Utilities Commission of Illinois, but as yet no refunding and improvement mortgage bonds have been issued.

Michigan Central Railroad Equipment Trust of 1917 was established by agreement dated March 1, 1917, which provides for a total issue of $9,000,000.00 equipment trust certificates, bearing interest at 4½% per annum. Under the provision of the trust 10 passenger train cars and 3,450 freight train cars were received, 80% of the cost of which was covered by certificates and the remainder by cash payments. The certificates issued during the year amounted to $4,845,000.00, but owing to the fact that the general market has been practically closed to railroad securities, the company through the medium of short term loans acquired all of the certificates, using the greater part of them as collateral, pending more favorable conditions for their sale.

On May 15, 1917, this company issued its one year promissory notes for $8,000,000.00 bearing interest at the rate of 5% per annum, the proceeds being used to take up other notes aggregating $6,000,000.00, and the balance for corporate purposes.

During the period July 1, 1912, to May 1, 1916, this company advanced to the Indiana Harbor Belt Railroad Company, for additions and betterments, the sum of $769,884.02, which amount was covered by notes of the Belt Company. In exchange for these notes The Michigan Central Railroad Company received 7,650 shares of the stock of the Indiana Harbor Belt Railroad Company of a par value of $765,000.00 being its pro-rata of an increase in the capital stock of that company from $2,450,000.00 to $5,000,000.00, and it further received a demand note dated November 23, 1917, bearing interest at the rate of 5% per annum, for $4,884.02. By acquiring this stock the company increased its holdings in capital stock of the Indiana Harbor Belt Railroad Company to 15,000 shares.

In addition to the $769,884.02 above mentioned, this company on June 26, 1917, advanced to the Indiana Harbor Belt Railroad Company $262,616.63, bearing interest at the rate of 5% per annum, to cover proportion of expenditures account additions and betterments, and on December 31, 1917, contributed its ownership proportion or $150,000.00 towards an increase in the working fund.

The company acquired 4,068 shares of the capital stock, par value of $406,800.00, and a demand note dated June 15, 1917, amounting to $35,848.07, of the Detroit Terminal Railroad Company in liquidation of notes issued by that company to cover advances for additions and improvements. By the acquisition of this stock the company's holdings of the capital stock of the Detroit Terminal Railroad Company were increased to 5,000 shares.

The Michigan Central Railroad Company had in its treasury $201,000.00 par value of the first mortgage 3% gold bonds of the Bay City and Battle Creek Railway Company, the property of which had been acquired by purchase in 1916. On March 14, 1917, the Board of Directors authorized the cancellation of these bonds, and pursuant to such authority, they were destroyed by cremation on June 7, 1917.

On April 8, 1917, The New York Central Railroad Company became a tenant of this company's freight and passenger terminal facilities in Detroit, Michigan.

In the operation of the Pension Department, 46 employees were retired and placed upon the pension roll. Of these retirements 29 were authorized because of the attainment of seventy years of age, and 17 because of total and permanent physical disability. 30 pensioners died during 1917, and at the close of the year 293 retired employees were carried upon the pension rolls. The average monthly pension allowance of these employees was $22.45, and the total amount paid in pension allowances during the year was $79,560.84.

The President of the United States, by his proclamation of December 26th, and by virtue of the power vested in the chief executive in time of war by acts of Congress, took possession and assumed control of the operation of the property of this company, through the Secretary of War, at 12 o'clock, noon, on the 28th day of December, 1917.

SUMMARY OF FINANCIAL OPERATIONS AFFECTING INCOME

	1917	1916	
OPERATING INCOME	1,861.77	1,861.77	
RAILWAY OPERATIONS	*miles operated*	*miles operated*	*Increase or Decrease*
Revenues	$52,879,434.29	$46,418,790.11	$6,460,644.18
Expenses	38,289,136.32	30,646,260.72	7,642,875.60
NET REVENUE FROM RAILWAY OPERATIONS	$14,590,297.97	$15,772,529.39	—$1,182,231.42
Percentage of expenses to revenues	(72.41)	(66.02)	(6.39)
RAILWAY TAX ACCRUALS	$1,972,236.73	$1,686,010.06	$286,226.67
UNCOLLECTIBLE RAILWAY REVENUES	13,405.98	10,349.90	3,056.08
TOTAL	$1,985,642.71	$1,696,359.96	$289,282.75
RAILWAY OPERATING INCOME	$12,604,655.26	$14,076,169.43	—$1,471,514.17
NONOPERATING INCOME			
Joint facility rent income	$225,778.53	$225,376.79	$401.74
Income from lease of road	274.67	274.67	
Miscellaneous rent income	2,547.61	5,107.55	—2,559.94
Miscellaneous nonoperating physical property	1,879.41	1,787.00	92.41
Dividend income	487,115.00	476,017.25	11,097.75
Income from funded securities	43,490.00	46,739.17	—3,249.17
Income from unfunded securities and accounts	107,305.70	180,069.73	—72,764.03
Miscellaneous income	1,410.50	1,457.23	—46.73
TOTAL NONOPERATING INCOME	$869,801.42	$936,829.39	—$67,027.97
GROSS INCOME	$13,474,456.68	$15,012,998.82	—$1,538,542.14
DEDUCTIONS FROM GROSS INCOME			
Hire of equipment—debit balance	$3,547,350.99	$2,274,352.38	$1,272,998.61
Joint facility rents	606,137.80	587,972.75	18,165.05
Rent of leased roads	2,775,914.04	3,259,907.22	—483,993.18
Miscellaneous rents	4,140.74	1,961.49	2,179.25
Miscellaneous tax accruals	6,952.78	2,466.01	4,486.77
Separately operated properties—loss	353,909.45	27,464.44	326,445.01
Interest on funded debt	2,138,504.28	1,768,138.09	370,366.19
Interest on unfunded debt	573,762.46	225,804.00	347,958.46
Amortization of discount on funded debt	22,704.00	22,704.00	
Miscellaneous income charges	6,863.82	4,856.25	2,007.57
TOTAL DEDUCTIONS FROM GROSS INCOME	$10,036,240.36	$8,175,626.63	$1,860,613.73
NET INCOME	$3,438,216.32	$6,837,372.19	—$3,399,155.87
DISPOSITION OF NET INCOME			
Dividend appropriation of income (4%)	$749,456.00	$749,456.00	
Appropriated for investment in physical property			
Additions and betterments	24,440.57	1,459.19	$22,981.38
Additions and betterments—leased lines	228,163.09	143,000.04	85,163.05
Capital stock purchased:			
Jackson Lansing and Saginaw RR Co.		1,151,150.00	—1,151,150.00
Grand River Valley RR Co.		405,375.00	—405,375.00
Miscellaneous appropriation of income			
To equipment depreciation account		500,000.00	—500,000.00
TOTAL APPROPRIATIONS	$1,002,059.66	$2,950,440.23	—$1,948,380.57
INCOME BALANCE TRANSFERRED TO CREDIT OF PROFIT AND LOSS	$2,436,156.66	$3,886,931.96	—$1,450,775.30

Profit and loss account

AMOUNT TO CREDIT OF PROFIT AND LOSS DECEMBER 31, 1916		$17,113,432.94
ADD:		
Surplus for the year 1917	$2,436,156.66	
Proceeds from sale of unclaimed and refused freight	41,959.83	
Insurance collections on property not replaced	11,100.00	
Sundry adjustments and cancellations (net)	15,373.01	2,504,589.50
		$19,618,022.44
DEDUCT:		
Expenses, Michigan Central Railroad equipment trust of 1917	$9,560.31	
Discount, commission and expenses, NYC Lines equipment trusts of 1910 and 1913	5,305.37	
Expenses, Michigan Central refunding and improvement mortgage	15,937.75	
Depreciation unaccrued prior to July 1, 1907, on equipment retired during 1917	346,923.74	
Federal excise tax on 1916 income (U. S.)	148,930.79	
Business profits war tax on 1916 income (Canada)	404,665.25	
Abandoned property	97,562.49	1,028,885.70
BALANCE TO CREDIT OF PROFIT AND LOSS DECEMBER 31, 1917		$18,589,136.74

The total gross revenue for the year was $52,879,434.29, an increase of $6,460,644.18, due principally to the general expansion of business conditions throughout the country, there having been an unprecedented volume of traffic incident to the war and the abnormal conditions resulting therefrom.

The total operating expenses were $38,289,136.32, an increase of $7,642,875.60. By groups the increases were as follows:

Maintenance of way and structures	$223,269.43
Maintenance of equipment	1,351,215.46
Traffic	45,457.07
Transportation	5,804,513.44
Miscellaneous operations	123,492.79
General	94,927.41
Total	$7,642,875.60

The increase in operating expenses can be attributed in a large measure to greater traffic, higher rates of wages and increased cost of fuel and other supplies.

The railway tax accruals for the year were $1,972,236.73, an increase of $286,226.67 as compared with the previous year, due principally to war tax in the United States and the Dominion of Canada, partly offset by a reduction in rate of ad valorem tax in the state of Michigan.

The total deductions from gross income were $10,036,240.36, an increase of $1,860,613.73. The principal fluctuations were as follows:

Hire of equipment increased $1,272,998.61, due to higher rates and increased traffic, partly offset by additional equipment purchased and put in operation the latter part of the year.

Separately operated properties-loss increased $326,445.01, of which $318,020.11 was operating guarantee to the Indiana Harbor Belt Railroad Company.

Interest on unfunded debt increased $347,958.46, on account of the larger amount of short term notes outstanding.

Interest on funded debt increased $370,366.19 and rent for leased roads decreased $483,993.18, due almost entirely to the absorption of various leased lines mentioned in the 1916 report.

We regret to record the death on the eighteenth of October, 1917, of Louis D. Heusner, Assistant General Passenger Agent, who was for many years a faithful and valued employee.

George H. Webb, Chief Engineer of this company, was commissioned Lieutenant Colonel of the 16th Regiment Railway Engineers, United States Army in June, 1917, and is now in active service in France.

The following appointments were effective during the year:

January 1st	Henry Russel, Vice President
January 1st	Frank E. Robson, General Counsel
March 14th	Edmond D. Bronner, Vice President and General Manager
June 28th	James F. Deimling, Acting Chief Engineer
July 1st	Arthur L. Sarvey, Valuation Engineer
August 15th	Carl Howe, Traffic Manager.
August 15th	Preston G. Findlay, General Freight Agent

Acknowledgment is hereby made to officers and employees for faithful and efficient service.

For the Board of Directors,

ALFRED H. SMITH,
President.

Cleveland Cincinnati Chicago & St. Louis Railway Company Twenty-ninth Annual Report

To the Stockholders of
THE CLEVELAND CINCINNATI CHICAGO AND ST. LOUIS RAILWAY COMPANY:

The Board of Directors herewith submits its report for the year ended December 31, 1917, with statements showing the results for the year and the financial condition of the company.

The mileage embraced in the operation of the road is as follows:

	Miles
Main line and branches owned	1,693.03
Proprietary lines	126.09
Leased lines	202.42
Operated under contract	201.37
Trackage rights	164.00
Total road operated	2,386.91

By the corporate action of this company and that of the Saline Valley Railway Company, approved by the State Public Utilities Commission of Illinois, the latter company conveyed its railway and other property to this company and a merger thereof with the railway of this company was affected on the tenth day of April, 1917. For this reason the table above shows an increase in the mileage of main line and branches owned of 5.16 miles and a corresponding decrease in mileage of leased lines as compared with the year 1916.

A statement showing in detail the mileage of road operated will be found on another page.

The President of the United States, by his proclamation of December 26th and by virtue of the power vested in the chief executive in time of war by acts of Congress, took possession and assumed control of the operation of the property of this company through the Secretary of War, at 12 o'clock, noon, on the 28th day of December, 1917.

SUMMARY OF FINANCIAL OPERATIONS AFFECTING INCOME

	1917	1916	INCREASE OR DECREASE.
OPERATING INCOME	2,386.91	2,386.91	
RAILWAY OPERATIONS	*miles operated*	*miles operated*	
Revenues	$52,650,920.24	$46,678,240.44	$5,972,679.80
Expenses	38,059,421.05	31,221,976.50	6,837,444.55
NET REVENUE FROM RAILWAY OPERATIONS	$14,591,499.19	$15,456,263.94	—$864,764.75
Percentage of expenses to revenues	(72.29)	(66.89)	(5.40)
RAILWAY TAX ACCRUALS	$2,738,985.98	$1,686,719.93	$1,052,266.05
UNCOLLECTIBLE RAILWAY REVENUES	9,632.13	9,677.64	—$45.51
	$2,748,618.11	$1,696,397.57	$1,052,220.54
RAILWAY OPERATING INCOME	$11,842,881.08	$13,759,866.37	—$1,916,985.29
MISCELLANEOUS OPERATIONS			
Revenues	$18,203.96	$16,277.24	$1,926.72
Expenses and taxes	12,880.08	12,441.35	438.73
MISCELLANEOUS OPERATING INCOME	$5,323.88	$3,835.89	$1,487.99
TOTAL OPERATING INCOME	$11,848,204.96	$13,763,702.26	—$1,915,497.30
NON-OPERATING INCOME			
Joint facility rents	$513,947.26	$463,873.72	$50,073.54
Miscellaneous rents	367,757.60	186,885.37	180,872.23
Miscellaneous non-operating physical property	76,134.06	84,111.60	—7,977.54
Separately operated properties profit	3,618.31	.....	3,618.31
Dividend income	136,870.55	162,205.90	—25,335.35
Income from funded securities	233,749.22	281,278.02	—47,528.80
Income from unfunded securities and accounts	89,150.54	67,778.48	21,372.06
Release of premiums on funded debt	1,951.42	1,191.78	759.64
Miscellaneous income	140,446.52	50,318.39	90,128.13
TOTAL NON-OPERATING INCOME	$1,563,625.48	$1,297,643.26	$265,982.22
GROSS INCOME	$13,411,830.44	$15,061,345.52	—$1,649,515.08
DEDUCTIONS FROM GROSS INCOME			
Hire of equipment—debit balance	$1,804,641.57	$519,460.62	$1,285,180.95
Joint facility rents	609,829.83	562,562.76	47,267.07
Rent for leased roads	566,679.00	571,041.00	—4,362.00
Miscellaneous rents	315,014.18	185,116.04	129,898.14
Miscellaneous tax accruals	478.93	456.07	22.86
Separately operated properties—loss	97,934.82	72,353.22	25,581.60
Interest on funded debt	4,607,270.39	4,718,774.25	—111,503.86
Interest on unfunded debt	129,996.94	79,313.62	50,683.32
Amortization of discount on funded debt	9,402.78	10,165.30	—762.52
Miscellaneous income charges	12,774.90	10,400.26	2,374.64
TOTAL DEDUCTIONS FROM GROSS INCOME	$8,154,023.34	$6,729,643.14	$1,424,380.20
NET INCOME	$5,257,807.10	$8,331,702.38	—$3,073,895.28
DISPOSITION OF NET INCOME			
Income applied to sinking fund	$30,309.57	$28,966.67	$1,342.90
Dividends (preferred stock 5% in 1917, 3¼% in 1916)	499,925.00	374,943.75	124,981.25
Income appropriated for investment in physical property	70,600.41	177,827.93	—107,227.52
To equipment depreciation account	.....	750,000.00	—750,000.00
TOTAL APPROPRIATIONS	$600,834.98	$1,331,738.35	—$730,903.37
SURPLUS TRANSFERRED TO CREDIT OF PROFIT AND LOSS	$4,656,972.12	$6,999,964.03	—$2,342,991.91

Amount to credit of profit and loss December 31, 1916		$5,147,009.09
Surplus for year 1917		4,656,972.12
		$9,803,981.21
ADD:		
Unrefundable overcharges accumulated since July 1, 1914	$528,467.23	
Adjustment of sundry accounts (net)	127.33	
		528,594.56
		$10,332,575.77
DEDUCT:		
Unaccrued depreciation prior to July 1, 1907, on equipment retired during 1917	$398,696.52	
Federal income tax based on 1916 results and paid in 1917	169,912.80	
Losses sustained by fires in storage coal	84,019.06	
Surplus appropriated for investment in physical property	9,522.58	
Property abandoned	9,291.09	
		671,442.05
Balance to credit of profit and loss December 31, 1917		$9,661,133.72

Gross operating revenues for the year were $52,650,920.24, an increase of $5,972,679.80, of which $5,778,718.82 was in transportation revenue and $193,960.98 in incidental and joint facility revenues.

Total revenue tonnage carried was 35,802,523, an increase of 2,899,940, of which 2,871,367 was in bituminous coal, smaller fluctuations in the other classes of traffic practically offsetting one another. The average revenue per ton per mile was 5.66 mills, an increase of .1 mill, due largely to increases in rates granted by the federal and state commissions during the year. The revenue train loading was 691 tons, an increase of 37 tons or 5.66 per cent, while freight revenue per train mile was $3.91, an increase of $.27.

The total railway operating expenses were $38,059,421.05, an increase of $6,837,444.55. Fluctuations by groups were as follows:

Maintenance of way and structures—decrease	$169,478.39
Maintenance of equipment—increase	1,122,166.70
Traffic—increase	13,936.80
Transportation—rail line—increase	5,643,656.10
Miscellaneous operations—increase	46,811.04
General—increase	124,599.27
Transportation for investment—credit—decrease	55,753.03
Net increase	$6,837,444.55

Pay rolls increased $3,848,262.76, of which $2,323,944.21 was due to increases in wage schedules of the various departments made necessary by industrial competition and increased cost of living. An analysis of the prices on a representative list of material items used in large quantities by the company shows an increase of about 40 per cent in the prices on such material over the previous year. There is also an increase in the item of fuel for locomotives of $2,099,848.57, of which $1,667,894.60 is due to increase in prices.

The net income for the year was $5,257,807.10, a decrease of $3,073,893.28. Dividends aggregating 5 per cent or $499,925.00 on the outstanding preferred stock of the company, were paid and charged against the net income. The surplus for the year was $4,656,972.12, a decrease of $2,342,991.91.

During the year there was charged to income the company's proportion of the deficit resulting from the operation of the Central Indiana Railway for the year amounting to $60,627.35 or $11,027.26 more than the previous year.

The operations of the Kankakee and Seneca Railroad (for which separate accounts are maintained) show revenues for the year $119,303.93, operating expenses, taxes and additions and betterments $188,879.66, deficit $69,575.73, one-half of which, $34,787.86, was assumed by this company and charged to income in 1917.

The Mount Gilead Short Line (for which separate accounts are maintained) shows revenues for the year $9,752.18, operating expenses and taxes $12,404.29, non-operating income $132.50, deficit $2,519.61, all of which was charged to income by this company in 1917.

The summary of financial operations affecting income includes the operations of the Peoria and Eastern Railway, Indianapolis, Indiana, to Peoria, Illinois. Separate accounts for this line are maintained, nd the operations for the year 1917 show revenues amounting to $2,544,826.30, operating expenses and taxes $2,248,046.37, operating income $296,779.93, non-operating income $460,116.91, gross income $756,896.84, deductions from gross income $653,843.37, surplus $103,053.47. Sundry adjustments of profit and loss and other items during the year aggregate $61,437.54, leaving $41,615.93

net surplus for the year, which deducted from $456,788.66 due this company for advances on December 31, 1916, makes the indebtedness on December 31, 1917, $415,172.73.

In connection with the federal valuation of the company's property, the work of investigating the cost of grading, bridges and buildings was continued by the valuation forces during the year. Complete survey of the cost of adjacent lands was made independent of that made by the Government land appraisers, which force made during the year investigation of the cost of adjacent land upon about two-thirds of the line. The work of compiling quantities in the company's structures was continued, and the engineering forces are ready to check tentative valuation. The Government forces hvae been getting their data together, and it is expected that tentative report will be made some time during the year 1918.

In the operation of the Pension Department, 46 employees were retired and placed upon the pension roll. Of these retirements 30 were authorized because of the attainment of seventy years of age, and 16 because of total and permanent physical disability. 39 pensioners died during 1917, and at the close of the year 320 retired employees were carried upon the pension rolls. The average monthly pension allowance of these retired employees is $21.58, and the total amount paid in pension allowances during the year was $87,176.86.

There was no change in the capital stock during the year, the amounts authorized and issued to December 31, 1917, being as follows:

Preferred stock authorized		$10,000,000.00
Common stock authorized		50,000,000.00
Total stock authorized		$60,000,000.00
Preferred stock issued	$10,000,000.00	
Common stock issued	47,056,300.00	57,056,300.00
Balance common stock authorized but not issued, December 31, 1917		$2,943,700.00

The funded debt unmatured outstanding December 31, 1916, was $100,586,224.16

It has been decreased during the year as follows:

Big Four Ry equipment trust certificates payable June 1, 1917	$373,000.00	
Big Four Ry equipment trust certificates payable July 1, 1917	115,000.00	
Pro rata New York Central Lines equipment trust certificates payable November 1, 1917	246,689.81	
Pro rata New York Central Lines equipment trust certificates payable January 1, 1918.	476,249.73	
C I St L & C Ry Co general first mortgage bonds retired	73,000.00	
C I St L & C Ry Co first mortgage bonds retired	6,000.00	
Central Grain Elevator Company bonds retired	25,000.00	
C C C & St L (St Louis Division) first collateral trust mortgage bonds purchased for sinking fund	40,000.00	1,354,939.54
Total funded debt outstanding December 31, 1917 (detail on another page)		$99,231,284.62

Under Big Four Railway Trust Agreement of June 1, 1917, authorized by the Board of Directors, May 9, 1917, thirty-five locomotives, seven hundred and fifty freight train cars and fifty passenger train cars were contracted for at an estimated cost of $2,953,000.00. Trust certificates were issued during the year to the total amount of $1,488,000.00, but as these were concurrently acquired by the company, there is no change in the funded debt in this connection. Of the new equipment contracted for, fifteen locomotives, fifteen passenger train cars and all of the freight train cars were received and put in service during the year.

The additions to the road and equipment account during the year were as follows:

Additions and betterments road		$2,221,971.89
Equipment acquired under trust agreement	$3,084,987.49	
Owned equipment in excess of retirements	1,006,753.61	4,091,741.10
Total (per detail on another page)		$6,313,712.99

In the six years concluded December 31, 1917, there were marked increases in the growth of business and train loads. These increases are reflected in the average net corporate income of the Company which for the three years ended June 30th, 1917, was nearly three times that for the year 1911, and in surplus of the Company which at the close of 1917 shows an increase of $7,500,000 for the period. Along with these favorable results it should be borne in mind that this Company has absorbed in the six years period the losses entailed by the flood in 1913. The per cent of gross revenue saved for net corporate income was about six per cent in 1911 and ten per cent in 1917.

On June 1, Walter R. Gibbons was appointed Real Estate and Tax Agent and William J. Hiner, Purchasing Agent.

Thanks and appreciation are extended to the officers and employees for their loyal and efficient service during the year.

For the Board of Directors,

ALFRED H. SMITH,
President.

The Chesapeake and Ohio Railway Company—Fortieth Annual Report

RICHMOND, VA., April 8, 1918.

TO THE STOCKHOLDERS:

The Fortieth Annual Report of the Board of Directors, for the fiscal year ended December 31, 1917, is herewith submitted.

The average mileage operated during the year by The Chesapeake and Ohio Lines was 2,412.1 miles, an increase over the previous year of 33.4 miles. The mileage at the end of the year was 2,478.3 miles, an increase of 97.6 miles over mileage on December 31, 1916.

RESULTS FOR THE YEAR.

Operating Revenues were	$54,643,793.52
(Increase $4,809,481.34, or 9.65%.)	
Operating Expenses were	38,105,805.89
(Increase $5,407,130.04, or 16.54%	
Net Operating Revenue was	$16,537,987.63
(Decrease $597.648.70, or 3.49%.)	
Taxes were	2,439,331.04
(Increase $802,727.03, or 49.05%)	
Operating Income, Taxes deducted, was	$14,098,656.59
(Decrease $1,400,375.73, or 9.04%.)	
Miscellaneous Income was	2,697,161.50
(Increase $1.056.018.52, or 64.35%.)	
	$16,795,818.09
Rentals and Other Payments were	1,139,645.04
(Increase $49,184.60, or 4.51%.)	
Income for the year available for interest was	$15,656,173.05
(Decrease $393,541.81, or 2.45%.)	
Interest (54.87% of amount available) amounted to	8,589,794.60
(Increase $206,961.51, or 2.47%.)	
Net Income for the year, equivalent to 11.25% on capital stock outstanding, amounted to	$7,066,378.45
(Decrease $600,503.32, or 7.33%.)	
Dividends paid during year: Two dividends of 2% each, aggregating	$2,511,264.00
Remainder, devoted to improvement of physical and other assets	$4,555,114.45

RETURN ON PROPERTY.

The following table shows the amount of return to your Company, including subsidiary companies, from transportation operations only, upon its investment in road and equipment at the termination of each year of the five year period ended December 31, 1917:

	Property Investment.	Total Operating Income.	Per-centage of Return.
Year ended December 31, 1917	$263,397,068.67	$14,871,459.45	5.64%
Year ended December 31, 1916	250,247,098.33	15,359,715.04	6.14%
Year ended December 31, 1915	244,068,206.05	12,465,058.24	5.11%
Year ended December 31, 1914	243,144,711.90	9,314,430.78	3.83%
Year ended December 31, 1913	236,065,971.07	9,382,649.18	3.97%
Yearly average for five years ended December 31, 1917	$247,384,611.20	$12,278,662.54	4.96%

FINANCIAL.

The changes in funded debt in the hands of the public during the year were as follows:

	Sold	Retired
4½ per cent. Equipment Trust Certificates Series "P"	$2,500,000.00	
4½ per cent. Equipment Trust Certificates —Series "R"	3,780,000.00	
4 per cent. Big Sandy Ry. First Mortgage Bonds		$53,000.00
4 per cent. Coal River Ry. First Mortgage Bonds		20,000.00
4 per cent. Greenbrier Ry. First Mortgage Bonds		20,000.00
4 per cent. Raleigh & Southwestern Ry. First Mortgage Bonds		12,000.00
Equipment Trust Obligations		1,150,000.00
	$6,280,000.00	$1,255,000.00
Net Increase	5,025,000.00	

Other changes in obligations shown under funded debt on balance sheet of December 31, 1917, were as follows:

	Payments
5 per cent. Equipment Contract—Standard Steel Car Co.	$660,047.01
5 per cent. Equipment Contract—Central Locomotive and Car Works	71,410.24
6 per cent. Equipment Contract—American Locomotive Co.	170,602.48
5½ per cent. Equipment Contract—Central Locomotive and Car Works	450,000.00
Decrease	$1,352,059.73

Four and one-half per cent. Equipment Trust Certificates, Series "P," $2,500,000.00, and Series "R," $3,780,000.00, in amounts, were issued and sold to provide funds for payment of equipment shown in table on page 19.

Your Company acquired during the year 9,450 additional shares of the capital stock of The Chesapeake and Ohio Northern Railway Company, payment for which was made with cash derived from sale of stock of The Kanawha and Michigan Railway Company. From the proceeds of the sale there is still deposited with the Trustee for future investment the sum of $528,600.00.

There were also acquired 1,450 additional shares of the capital stock of the Pond Fork Railway Company, and 150 additional shares of the capital stock of the White Sulphur Springs, Inc.

Your Company has purchased the entire capital stock, 1,500 shares, of the Piney River and Paint Creek Railroad Company at a cost of $270,000.00, and also the Price Hill division of the White Oak Railway Company for $77,500.00.

Additional First Mortgage Bonds of The Chesapeake and Ohio Railway Company of Indiana were issued in respect of the cost of certain additions and betterments made to that line, and were pledged under your Company's First Lien and Improvement Mortgage.

During the past year your Company acquired at par the entire capital stock, 10,000 shares, and $500,000.00 par amount of coupon notes of the Western Pocahontas Fuel Company, a corporation owning the Dorothy and Sarita coal properties in West Virginia, so as to protect the Company's fuel requirements.

A statement of charges to property accounts will be found on page 16, showing a net addition of $10,583,655.63; that is, $2,632,648.04 was added to cost of road and $7,951,007.59 was added to cost of equipment.

During the past nine years your Company's increase in capital liabilities in hands of the public, its principal acquisition of stocks and bonds of other companies, and its expenditures for equipment, branch line construction, second track and other additions and betterments, have been as follows:

Capital Obligations Issued or Assumed:	Par Value.	
General Mortgage 4½% Bonds	$4,306,000.00	
General Funding and Improvement Mortgage 5% Bonds	11,000,000.00	
First Consolidated Mortgage 5% Bonds	2,000,000.00	
Convertible 4½% Debentures	31,390,000.00	
Three Year 4½% Collateral Trust Notes	25,000,000.00	
One Year 5% Collateral Trust Notes	3,500,000.00	
Five Year 5% Collateral Trust Notes	33,000,000.00	
Convertible 5% Secured Gold Bonds	40,180,000.00	
Coal River Railway Co. First Mortgage 4% Bonds	3,000,000.00	
Raleigh and Southwestern Railway Co. First Mortgage 4% Bonds	860,000.00	
Big Sandy Railway Co. First Mortgage 4% Bonds	229,000.00	
Virginia Air Line Railway Co. First Mortgage 5% Bonds	900,000.00	
Equipment Trust Certificates Series "N"	1,700,000.00	
Equipment Trust Certificates Series "O"	3,160,000.00	
Equipment Trust Certificates Series "P"	2,500,000.00	
Equipment Trust Certificates Series "R"	3,780,000.00	
Equipment Contracts, Various	4,809,390.00	
	$171,314,390.00	
Realizing		$162,667,314.49
Less:		
Capital Obligations Paid or Purchased:		
Six Per Cent. Collateral Gold Notes	$5,000,000.00	
Collateral Gold 6% Notes	2,500,000.00	
Peninsula Division First Mortgage 6% Bonds matured January 1, 1911	2,000,000.00	
Greenbrier and New River Railroad Co. First Mortgage 5% Bonds redeemed February 1, 1911	339,000.00	
General Funding and Improvement Mortgage 5% Bonds	7,302,000.00	
Greenbrier Railway Co. First Mortgage 4% Bonds retired November 1, 1911	2,000.00	
Three Year 4½% Collateral Trust Notes	25,000,000.00	
One Year 5% Collateral Trust Notes	3,500,000.00	
Five Year 5% Secured Gold Notes	33,000,000.00	
Kineon Coal Co. First Mortgage 5% Bonds	200,000.00	
Equipment Trust Payments	13,407,000.00	
Through Sinking Funds:		
Big Sandy Railway Co. First Mortgage 4% Bonds	490,000.00	
Coal River Railway Co. First Mortgage 4% Bonds	244,000.00	
Greenbrier Railway Co. First Mortgage 4% Bonds	177,000.00	
Raleigh and Southwestern Railway Co. First Mortgage 4% Bonds	55,000.00	
	$93,216,000.00	
Costing		93,926,424.59
		$68,740,889.90
Acquisitions:		
Stocks of:		
The C. & O. Railway Co. of Indiana	$5,998,800.00	
Elkhorn and Beaver Valley Railway Co.	30,000.00	
Gauley and Meadow River Railroad Co.	116,300.00	
The Hocking Valley Railway Co.	7,671,900.00	
Cincinnati Inter-Terminal Railroad Co.	56,000.00	
Logan and Southern Railway Co.	292,100.00	
Levisa River Railroad Co. (of Ky.)	50,000.00	
The Levisa River Railroad Co. (of Va.)	50,000.00	
Kanawha Bridge and Terminal Co.	400,000.00	
The Silver Grove Land and Building Co.	200,000.00	
White Sulphur Springs, Incorporated	2,575,000.00	
First National Bank Building Corporation (Richmond, Va.)	180,000.00	
The Chesapeake and Ohio Northern Railway Co.	3,497,900.00	
Pond Fork Railway Co.	204,100.00	
Piney River and Paint Creek Railroad Co.	150,000.00	
Western Pocahontas Fuel Co.	1,000,000.00	
Miscellaneous	32,300.00	
	$22,504,400.00	
Costing		$23,959,341.89
Bonds and Notes of:		
Canadian Pacific Railroad Co. Equipment Certificates 4½%	$30,000.00	
The C. & O. Railway Co. of Indiana First Mortgage 5%	7,270,000.00	
Elkhorn and Beaver Valley Railway Co. First Mortgage 5%	1,031,000.00	
Illinois Central R. R. Co. Equipment Certificates 4½%	10,000.00	
New York Central Lines Equipment Certificates 4½%	65,000.00	
New York Central Railroad Co. Equipment Certificates 4½%	33,000.00	
Western Pocahontas Fuel Co. Coupon Notes 5%	500,000.00	
Miscellaneous	334,000.00	
	$9,273,000.00	
Costing		7,775,642.52
Properties of:		
Coal River Railway Co.	$2,304,359.88	
Raleigh and Southwestern Railway Co.	816,562.42	
Virginia Air Line Railway Co.	1,071,947.12	
Costing	$4,192,869.42	4,192,869.42
Construction of:		
Extension of Branch Lines, costing	$2,420,959.63	
Second Track (185.01 miles) and Additions and Betterments, costing	19,901,232.26	
		22,322,191.89
(Excluding $2,680,955.25 expended on Chicago Line to October 31, 1917, for which securities have been acquired.)		
Equipment:		
Additional equipment acquired (less retirals). (Excluding—Credit –$27,319.93, included in Statement of Expenditures on Chicago Line to October 31, 1917, for which securities have been acquired.)		31,169,535.44
Costing		$89,419,581.16

GENERAL REMARKS.

At the annual meeting of the stockholders held October 23, 1917, the by-laws were amended by changing the date of the annual meeting from the Tuesday preceding the last Tuesday of October to the Tuesday preceding the last Tuesday of April in each year, so as to correspond with the change in the fiscal year of the Company, which as noted in last year's report, now ends on December 31st.

The equipment inventory as of December 31, 1917, was as follows:

Locomotives owned	645	Dec.	3
Locomotives leased	228	Inc.	50
Total	873	Inc.	47
Passenger train cars owned	334	Dec.	1
Passenger train cars leased	62	Inc.	13
Total	396	Inc.	12
Freight train and miscellaneous cars owned	32,427	Inc.	5,616
Freight train cars leased	17,006	Dec.	2,696
Total	49,433	Inc.	2,920
Floating Equipment	19	Inc.	1

There were undelivered December 31, 1917, 856 steel gondola cars purchased under Equipment Trust Series "R," as shown on page 19 of this report, that are not included in the above table.

The changes during the year in the accrued depreciation of equipment account were as follows:

Balance to credit of account December 31, 1916		$5,846,710.51
Amount credited during year ended December 31, 1917, by charges to:		
Operating expenses	$1,352,053.82	
Profit and Loss	297,472.07	
	$1,649,525.89	
Charged to account for:		
Accrued depreciation on equipment retired during year—		
3 locomotives and 972 freight train and work cars	$72,963.31	
		$1,576,562.58
Balance to credit of account December 31, 1917		$7,423,273.09

Increased wages affecting all branches of the service were effective during the year, and an additional increase was granted to the clerks in the General Offices and at various points along the line, taking effect during the months of October, November and December. The increased cost to the Company on account of the above increases during the year approximated $3,051,100.00.

	1917	1916		
Operating Revenues amounted to	$54,643,793.52	$49,834,312.18	Inc.	$4,809,481.34
Net Operating Revenue	$16,537,987.63	$17,135,636.33	Dec.	597,648.70
Operating Ratio	69.7%	65.6%	Inc.	4.1%
Tons of Revenue Freight carried one mile	10,262,440,801	10,437,225,643	Dec.	174,784,842
Revenue train loads, tons	1,043	1,007	Inc.	36
Revenue tons per loaded car	35.6	34.1	Inc.	1.5

The revenue coal and coke tonnage was 26,230,768, a decrease of 3.9 per cent; other freight tonnage was 11,648,957, an increase of 4.4 per cent. Total revenue tonnage was 37,879,725 tons, a decrease of 1.5 per cent. Freight revenue was $42,998,222.58, an increase of 7.8 per cent. Freight train mileage was 9,841,024 miles, a decrease of 5.1 per cent. Revenue ton miles were 10,262,440,801, a decrease of 1.7 per cent. Ton mile revenue was 4.19 mills, an increase of 9.7 per cent. Revenue per freight train mile was $4.369, an increase of 13.6 per cent. Revenue tonnage per train mile was 1,043 tons, an increase of 3.6 per cent; including Company's freight, the tonnage per train mile was 1,112 tons, an increase of 4.0 per cent. Tonnage per locomotive, including Company's freight, was 979 tons, an increase of 3.5 per cent. Revenue tonnage per loaded car was 35.6 tons, an increase of 4.4 per cent. Tons of revenue freight carried one mile per mile of road were 4,254,567, a decrease of 3.0 per cent.

There were 7,557,722 passengers carried, an increase of 7.8 per cent. The

number carried one mile was 361,311,394, an increase of 19.7 per cent. Passenger revenue was $7,899,451.91, an increase of 22.8 per cent. Revenue per passenger per mile was 2.186 cents, an increase of 2.6 per cent. Number of passengers carried one mile per mile of road was 149,791, an increase of 18.6 per cent. Passenger train mileage was 5,379,708, an increase of 3.2 per cent. Passenger revenue per train mile was $1.468, an increase of 18.9 per cent; including mail and express, it was $1.707, an increase of 17.4 per cent. Passenger service train revenue per train mile was $1.746, an increase of 17.1 per cent.

The Chesapeake and Ohio Northern Railway connecting with the Chesapeake and Ohio Railway near Limeville, Ky., and extending to Parsons Yard (Columbus, O.), was placed in operation effective September 16, 1917. The total length of this line is 92.2 miles—29.3 miles being constructed between Limeville, Ky., and Waverly, O., at which point it connects with the Norfolk & Western Railway. Norfolk & Western Railway tracks are used from Waverly, O., to Valley Crossing, O., a distance of 62.0 miles. From Valley Crossing, O., to Parsons Yard (Columbus, O.), 0.9 mile, Hocking Valley Railway Tracks are used. This line has been completed between Limeville, Ky., and Waverly, O., with the exception of widening the roadbed, removing slides which have come in on the completed grade, and building section headquarters.

Extensions during the year have been as follows: An extension of Winding Gulf extension of Piney Creek Branch at Stone Coal, W. Va., to connection with the Virginian Railway 0.3 mile; Marsh Fork extension of Cabin Creek Branch 4.5 miles.

The Ivy Creek Branch of Coal River Branch, 1.7 miles, was taken over for operation during the year.

The following lines have been abandoned and taken up during the year: Sycamore Creek Extension of Cabin Creek Branch 0.5 mile and the Lamont Branch of Cabin Creek Branch 0.6 mile.

Second track between Walkerford and Riverville, Va., 3.1 miles has been completed and put in operation, and 2.0 miles of the second track under construction between Barboursville and Clover Valley, W. Va., on Guyandot Division is in operation.

Third track between Limeville, Ky., and junction of Chesapeake and Ohio Northern and Chesapeake and Ohio Railway has been completed and put in operation.

There were 25,119.0 tons new rail (635.4 tons 130-lb., 33.2 tons 125-lb. 20,056.4 tons 100-lb., and 4,394.0 tons 90-lb.), equal to 162 miles of track, used in renewal of existing track.

There were 1,467,696 cross ties used in maintaining existing tracks, a decrease of 119,654.

There were 654,306 yards of ballast (393,571 yards stone) used in maintaining existing tracks, a decrease of 350,648 yards.

The average amount expended for repairs per locomotive was $3,789.20; per passenger train car $1,076.73; per freight train car $91.81.

In order to provide for coal storage for the Government at Newport News, it has been arranged to construct a coal storage plant at that point, the capacity of which when completed to be 200,000 tons, which can be increased to 300,000 tons by the extension of tracks and trestle, and the loading out capacity to be 6,000 tons per day, which can be increased to 12,000 tons with two cranes.

Your Company has furnished its quota of men to the Nation's Military and Naval forces, approximately 825 employes having joined the colors.

There were purchased by your Company, Liberty Loan Bonds issued by the Federal Government, as follows:

First issue	$300,000.00
Second issue	510,000.00

as against which, there have been subscriptions by officers and employes for Liberty Bonds amounting to approximately $640,000.00, leaving a balance of about $170,000.00 in your Company's treasury.

In accordance with resolution of your Board, there were added to Property Investment Account $13,375,271.15, for extraordinary expenditures for property made and charged to operating expenses and income accounts during fiscal years ended June 30, 1891, to June 30, 1907, inclusive (see table 4 on page 16), and the amount credited to Appropriated Surplus—Additions to Property through Income and Surplus. There was deducted from Property Investment Account the sum of $1,136,523.60 for the adjustment of discount and expense less premiums, on bonds sold prior to January 1, 1904, and the amount charged to Profit and Loss. These adjustments were made to more accurately state your Property Investment Account and to permit of proper and correct accounting for retirals of property.

In March, 1916, your Board decided that it would appropriate out of the net income of the Company during the three years beginning May 1, 1916, an aggregate sum of not less than $7,500,000 to be used for additions and betterments and for capital expenditures, or reduction of capital liabilities, as an offset to the difference between the price at which its Five per cent. Convertible Thirty-Year Secured Gold Bonds may be converted, and the par amount of the stock in respect of any stock issued at less than par therefor. The net income of your Company for the period May 1, 1916, to December 31, 1917, aggregated, after payments of dividends $9,268,530.73, from which amount your Board has appropriated $7,500,000.00 on account of expenditures above mentioned. It will be seen that your Company has thus accomplished in twenty months all that it proposed to perform in three years in respect to this matter.

By proclamation, the President of the United States, through the Secretary of War, took possession and assumed control of railroads at 12 o'clock noon on December 28, 1917, and appointed a Director General of Railroads, by and through whom the possession, control, operation and utilization would be exercised. The proclamation also provided that the right to receive just and adequate compensation for such use, control and operation should not be impaired, and recommended an annual guaranteed compensation to each railrod company based upon its averge net operating income for the three-year period ended June 30, 1917. The President addressed Congress on January 4, 1918, and Congress has passed an act providing for Governmental operation for the period of the war and twenty-one months after the declaration of peace. This act was signed by the President on March 21, 1918, and negotiations thereunder with Governmental officials will soon be entered into by this Company. The accounting for the operation of the Railroads under Federal control did not become effective until January 1, 1918.

The following appointments became effective during the year:

April 1, Mr. L. D. Lacy, Auditor of Passenger Traffic, succeeding Mr. I. D. Briggs, Jr., deceased; May 1, Mr. H. E. Webb, Superintendent, Guyandot Division; June 1, Mr. W. L. Booth, General Superintendent of Transportation, and on October 28, his title was changed to Assistant General Manager; Mr. J. B. Parrish, Superintendent Freight Transportation; Mr. J. H. Carlisle, Assistant Superintendent Freight Transportation, and on October 28, Fuel Agent; and on same date Mr. A. T. Lowmaster, Assistant Superintendent Freight Transportation; Mr. J. A. Barker, Superintendent Terminals, Chicago; July 1, Mr. C. H. Mason, Auditor of Car Accounts; October 1, Mr. M. J. Caples, Resident Vice-President, Columbus, O.

Effective October 28, 1917, Mr. W. R. Hudson, General Superintendent, Western General Division, was transferred to Newport News, Va., as General Agent Transportation, American Railway Association, and the Central General Division was consolidated with the Western General Division under Mr. L. B. Allen, General Superintendent.

The acknowledgments of the Board are renewed to the officers and employes for all faithful and efficient service.

By order of the Board of Directors.

FRANK TRUMBULL, Chairman. GEO. W. STEVENS, President.

GENERAL INCOME ACCOUNT.

For Year ended December 31, 1917, and Comparison with Year ended December 31, 1916.

TABLE 2.

	1917.	1916.	INCREASE OR DECREASE.	PER CENT.
OPERATING REVENUES:				
Freight Traffic	$42,998,222.58	$39,888,932.23	$3,109,290.35	7.8
Passenger Traffic	7,899,451.91	6,435,025.33	1,464,426.58	22.8
Transportation of Mails	453,176.39	472,981.62	—19,805.23	4.2
Transportation of Express	831,441.43	669,029.39	162,412.04	24.3
Miscellaneous	2,461,501.21	2,368,343.61	93,157.60	3.9
Total Operating Revenues	$54,643,793.52	$49,834,312.18	$4,809,481.34	9.7
OPERATING EXPENSES:				
Maintenance of Way and Structures	$6,905,578.52	$6,067,657.64	$837,920.88	13.8
Maintenance of Equipment	10,521,724.03	10,240,497.62	281,226.41	2.8
Traffic	694,130.97	675,380.54	18,750.43	2.8
Transportation	18,537,582.20	14,355,564.64	4,182,017.56	29.1
Miscellaneous Operations	357,206.59	348,783.03	8,423.56	2.4
General	1,119,731.70	1,035,931.62	83,800.08	8.1
Transportation for Investment—Cr.	*30,148.12*	*25,139.24*	*5,008.88*	*19.9*
Total Operating Expenses	$38,105,805.89 69.7%	$32,698,675.85 65.6%	$5,407,130.04	16.5
Net Operating Revenue	16,537,987.63	17,135,636.33	—597,648.70	3.5
*Railway Tax Accruals.	2,439,331.04	1,636,604.01	802,727.03	49.1
Uncollectible Railway Revenues	3,496.56	12,355.33	8,858.77	71.7
	$2,442,827.60	$1,648,959.34	$793,868.26	48.1
Railway Operating Income	$14,095,160.03	$15,486,676.99	—$1,391,516.96	9.0
INCOME FROM OTHER SOURCES:				
Hire of Equipment	$1,483,596.44	$535,912.32	$947,684.12	176.8
Interest from Investments and Accounts.	860,077.81	761,430.65	98,647.16	13.0
Miscellaneous	353,487.25	343,800.01	9,687.24	2.8
	$2,697,161.50	$1,641,142.98	$1,056,018.52	64.4
Gross Income	$16,792,321.53	$17,127,819.97	—$335,498.44	2.0
DEDUCTIONS FROM GROSS INCOME:				
Interest on Debt	$8,589,794.60	$8,382,833.09	$206,961.51	2.5
Rentals Leased Roads, Joint Tracks, &c.	1,008,199.48	959,257.56	48,941.92	5.1
Loss on C. & O. Grain Elevator	32,078.14	54,060.88	—21,982.74	40.7
Miscellaneous	95,870.86	64,786.67	31,084.19	48.0
Total Deductions	$9,725,943.08	$9,460,938.20	$265,004.88	2.8
NET INCOME	$7,066,378.45	$7,666,881.77	—$600,503.32	7.8

Amount to credit of Profit and Loss December 31, 1916		$10,232,993.81
Amount of Net Income for year ended December 31, 1917, transferred to Profit and Loss		7,066,378.45
		$17,299,372.26
Deduct:		
Dividend 34 of 2% Paid June 30, 1917	$1,255,632.00	
Dividend 35 of 2% Paid December 31, 1917	1,255,632.00	2,511,264.00
		$14,788,108.26
Amount Appropriated out of Net Income for Expenditures for Additions and Betterments and Equipment		7,500,000.00
		$7,288,108.26
Discount and Expense on Securities issued during the year ended December 31, 1917	$186,764.70	
Adjustment of Discount and Expense on Securities issued prior to January 1, 1904, and charged to Property Account	1,136,523.60	
Adjustment of Depreciation prior to January 1, 1917, on Equipment charged to Income	297,472.07	
Appropriation of Surplus to Sinking and Other Reserve Funds	9,712.05	1,630,472.42
		$5,657,635.84
Add Adjustment of Taxes, Years 1912 to 1915, inclusive	$514,418.51	
Sundry Adjustments	44,158.73	
		558,577.24
Balance to credit of Profit and Loss December 31, 1917		$6,216,213.08

*Includes an estimated amount due the Federal Government for Income and War Excess Profits Tax under Act. of Congress approved October 3rd, 1917, but effective for the year ended December 31st, 1917.

GENERAL BALANCE SHEET, DECEMBER 31, 1917

ASSETS. (Excluding Stocks and Bonds owned of The C. & O. Ry Co. of Indiana and of The C. & O. Equipment Corporation.)		
Property Investment.		
Cost of Road	$182,904,094.45	
Cost of Equipment	68,440,185.25	
		$251,344,279.70
Improvements on Leased Railway Property		4,628.78
Securities of Proprietary, Affiliated and Controlled Companies—Pledged.		
Stocks	$14,558,999.44	
Bonds	4,110,407.01	
	$18,669,406.45	
Securities—Issued or Assumed—Pledged.		
Bonds (Includes First Lien and Improvement Mortgage 5% Bonds $45,920,000.00. See Contra.)	45,920,001.00	
	$64,589,407.45	
Miscellaneous Investments.		
Physical Property	378,900.23	
Special Funds, and Funded Debt Issued and Reserved.		
First Lien and Improvement Mortgage Bonds—Drawn for Additions and Betterments	1,345,000.00	
R. & S. W. Ry. Co., First Mortgage Bonds—Reserved for Construction	40,000.00	
Potts Creek Branch—Cash	47,081.47	
Special Deposits account of Construction and Equipment (Includes Cash Balance Proceeds K. & M. Ry. Co. Stock Sale.)	1,807,696.98	
	$3,239,778.45	
		68,208,086.13
		$319,556,994.61
Working Assets.		
Cash in Treasury	$1,037,375.99	
Cash in Transit	1,222,490.09	
	$2,259,866.08	
Cash deposits to pay Interest and Dividends	1,238,394.18	
Cash deposits to pay Matured Bonds and Scrip	13,234.17	
Cash deposit to pay C. & O Grain Elevator Insurance Claims	1,021.77	
Loans and Bills Receivable	617,965.48	
Traffic Balances	1,000,632.13	
Agents and Conductors	2,573,543.42	
Miscellaneous Accounts Receivable	2,305,860.93	
Other Working Assets	165,156.57	
	$10,175,674.73	
Materials and Supplies	6,131,266.54	
Securities in Treasury—Unpledged.		
Stocks	6,234,223.45	
Bonds	1,402,815.50	
	$7,637,038.95	
Deferred Assets.		
Unmatured Interest, Dividends and Rents	98,582.08	
Advances to Proprietary, Affiliated and Controlled Companies	514,895.98	
Advances, Working Funds (Fast Freight Lines, etc)	45,053.01	
Special Deposits with Trustees, Various Mortgage Funds	100,035.82	
Special Deposit, Cash and Securities Account Liberty Loan	604,659.50	
Cash and Securities in Sinking Funds	70,757.50	
Cash and Securities in Insurance Reserve Fund	72,992.02	
Sundry Accounts	881,439.59	
	$2,388,415.50	
		26,332,395.72
Total		$345,889,390.33

LIABILITIES. (Excluding Stocks and Bonds owned of The C. & O. Ry. Co. of Indiana and of The C. & O. Equipment Corporation.)		
Capital Stock.		
Common	$62,792,600.00	
First Preferred	3,000.00	
Second Preferred	200.00	
	$62,795,800.00	
Common—The Chesapeake and Ohio Railway Co. of Indiana	1,200.00	
		$62,797,000.00
Funded Debt.		
First Mortgage, Terminal, etc, 6% Bonds, 1922	$142,000.00	
General Funding and Improvement, 5% Bonds 1929	3,698,000.00	
Convertible, 4½% Bonds 1930	31,390,000.00	
First Mortgage, R. & S. W. Railway, 4% Bonds, 1936	845,000.00	
First Consolidated Mortgage, 5% Bonds, 1939	29,858,000.00	
First Mortgage, Craig Valley Branch, 5% Bonds 1940	650,000.00	
First Mortgage, Greenbrier Railway, 4% Bonds 1940	1,742,000.00	
First Mortgage, Warm Springs Branch, 5% Bonds 1941	400,000.00	
First Mortgage, Big Sandy Railway, 4% Bonds 1944	4,510,000.00	
First Mortgage, Paint Creek Branch, 4% Bonds 1945	539,000.00	
First Mortgage, Coal River Railway, 4% Bonds 1945	2,756,000.00	
Convertible 5% Secured Gold Bonds 1946	40,180,000.00	
First Mortgage, Potts Creek Branch, 4% Bonds 1946	600,000.00	
First Mortgage, Va. Air Line Railway, 5% Bonds 1952	900,000.00	
First Mortgage, R. & A. Division, 4% Bonds 1989	6,000,000.00	
Second Mortgage, R. & A. Division, 4% Bonds 1989	1,000,000.00	
General Mortgage, 4½% Bonds 1992	48,129,000.00	
	$173,339,000.00	
Equipment Trust Obligations and Contracts	10,624,327.16	
		183,963,327.16
		$246,760,327.16
First Lien and Improvement Mortgage, 5% Bonds not in hands of public (see Contra) 1930		47,265,000.00
Working Liabilities.		
Loans and Bills Payable	$95,000.00	
Traffic Balances	992,616.09	
Audited Vouchers and Pay Rolls	6,640,980.48	
Unpaid Wages	950.01	
Miscellaneous Accounts Payable	537,427.55	
Matured Interest and Dividends Unpaid	1,411,117.58	
Matured Mortgage and Secured Debt Unpaid	13,234.17	
Other Working Liabilities	156,519.20	
	$9,847,845.08	
Deferred Liabilities.		
Unmatured Interest and Rents	$2,478,785.64	
Taxes Accrued	1,196,113.71	
Employes Payments on Liberty Loan Bonds	156,155.10	
Accrued Depreciation—Equipment	7,423,273.09	
Sundry Accounts	569,606.61	
	$11,823,934.15	
		21,671,779.23
Appropriated Surplus.		
Additions to Property through Income and Surplus	$23,859,636.38	
Reserve Invested in Sinking Funds	43,442.46	
Reserve Invested in Insurance Fund	72,992.02	
	$23,976,070.86	
Profit and Loss—Balance	6,216,213.08	
		30,192,283.94
Total		$345,889,390.33

The Hocking Valley Railway Company—Nineteenth Annual Report

Columbus, Ohio, April 8, 1918.

To the Stockholders:

The Ninteenth Annual Report of the Board of Directors, for the fiscal year ended December 31, 1917, is herewith submitted.

The average mileage operated during the year was 349.6 miles, a decrease compared with the previous year of .6 miles. The mileage at the end of the year was 349.7 miles.

RESULTS FOR THE YEAR.

Operating Revenues were (Increase $2,496,014.30 or 30.44%.)	$10,696,434.22
Operating Expenses were (Increase $1,811,233.68 or 32.36%.)	7,409,122.69
Net Operating Revenue was (Increase $684,780.62 or 26.31%.)	$3,287,311.53
Taxes were (Increase $242,277.41 or 41.03%.)	832,747.51
Operating Income, Taxes deducted, was (Increase $442,503.21 or 21.99%.)	$2,454,564.02
Miscellaneous Income was (Decrease $429,905.22 or 37.49%.)	716,899.02
	$3,171,463.04
Rentals and Other Payments were (Decrease $540,094.73 or 94.68%.)	30,355.40
Income for the year available for interest was (Increase $552,692.72 or 21.35%.)	$3,141,107.64
Interest (38.43% of amount available) amounted to (Decrease $5,092.97 or 0.42%.)	1,207,195.17
Net Income for the year amounted to (Increase $557,785.69 or 40.53%.)	$1,933,912.47
Dividends paid during the year:	
One dividend of 2%	$219,990.00
One dividend of 3½%	384,982.50
	604,972.50
Remainder, devoted to improvement of physical and other assets	$1,328,939.97

RETURN ON PROPERTY.

The following table shows the amount of return to your Company, from transportation operations only, upon its investment in road and equipment at the termination of each year of the five year period ended December 31, 1917:

Year ended December 31:	Property Investment.	Total Operating Income, (including hire of equipment and other items).	Per Cent. of Return.
1917	$46,237,480.24	$3,060,174.97	6.62
1916	45,198,144.03	3,052,123.37	6.75
1915	44,802,665.64	2,041,149.36	4.56
1914	45,475,978.73	1,673,012.19	3.68
1913	42,525,047.49	2,547,540.52	5.99
Average	$44,847,863.23	$2,474,800.08	5.52

FINANCIAL.

The changes in funded debt shown by balance sheet of December 31, 1917, as compared with December 31, 1916, consisted in the payment of $498,000.00 on equipment trusts, in the retirement of $4,000,000.00 face amount two-year 5% gold notes, and in the addition of $5,000,000.00 face amount 6% gold notes maturing November 1, 1918.

An analysis of the property accounts will be found on pages 12 and 13, by reference to which it will be seen that additions and betterments were made during the year to the net amount of $1,026,741.12, of which $577,703.48 was added to cost of road, and $449,037.64 was added to cost of equipment. The net amount of $605,349.08 was also added to cost of equipment for additions, betterments and retirements of equipment transferred from other accounts to which they had been charged or credited since June 30, 1907, this transfer having been made in order to place these items in the cost of equipment account where they properly belong.

During the past nine years your Company's net addition to property accounts has been as follows:

Equipment	$4,181,582.30
Additions and Betterments	3,776,349.24
	$7,957,931.54

GENERAL REMARKS.

Increases in wages of employees during the year increased the year's cost of operation approximately $625,000.

The equipment in service December 31, 1917, consisted of:

Locomotives owned	133	Increase	8
Locomotives leased under equipment trusts	8	No change	
Total	141	Increase	8
Passenger train cars owned	71	Decrease	2
Freight train and miscellaneous cars owned	12,688	Increase	2,983
Freight train cars leased under equipment trusts	2,499	Decrease	3,041
Freight train cars under special trust	47	No change	
Total freight train and miscellaneous cars	15,234	Decrease	58

The changes during the year in accrued depreciation of equipment account were as follows:

Balance to credit of account December 31, 1916			$1,543,798.00
Amount credited during year ended December 31, 1917, by charges to operating expenses	$293,338.03		
Amount credited by transfer of property items to cost of equipment	587,346.90		
		$880,684.93	
Charges to account for:			
Accrued depreciation on equipment retired during year—82 freight and work cars	$8,206.99		
2 passenger cars and motor equipment thereof	3,589.90		
Accrued depreciation on cars changed in class during year	348.87		
		12,145.76	
			868,539.17
Balance to credit of account December 31, 1917			$2,412,337.17

The grading for 27 miles of second track north of Columbus is well under way and some track has been laid. At Parsons Yard, South Columbus, five additional 100-car tracks are being constructed, a fireproof yard office is practically completed, and the 15-stall engine house with other shop facilities is now in use. The separation of grades at Smoky Row Road and the main tracks at South Columbus, ordered by the County Commissioners, is well under way. The capacity of the Walbridge yard has been increased by the construction of three 100-car arriving tracks. A 300-ton capacity coaling station at Nelsonville is practically completed.

The revenue coal and coke tonnage was 10,674,854 tons, an increase of 14.9%; other revenue freight tonnage was 4,191,981 tons, an increase of 11.2%. Total revenue tonnage was 14,866,835 tons, an increase of 13.8%. Freight revenue was $8,974,872.91, an increase of 34.3%. Freight train mileage was 1,474,893 miles, an increase of 8%. Revenue ton miles were 1,966,272,286, an increase of 19.6%. Ton mile revenue was 4.56 mills, an increase of 12.3%. Revenue per freight train mile was $6.085, an increase of 24.4%. Revenue tonnage per train mile was 1,333 tons, an increase of 10.7%; including Company's freight, the tonnage per train mile was 1,368 tons, an increase of 10.6%. Tonnage per locomotive, including Company's freight, was 1,123 tons, an increase of 7.5%. Revenue tonnage per loaded car was 43.8 tons, an increase of 9.2%. Tons of revenue freight carried one mile per mile of road were 5,624,349, an increase of 19.8%.

There were 1,699,494 passengers carried, a decrease of 3.6%. The number of passengers carried one mile was 50,001,632, an increase of 5.9%. Passenger revenue was $961,700.41, an increase of 4.8%. Revenue per passenger per mile was 1.923 cents, an increase of 1.2%. The number of passengers carried one mile per mile of road was 143,025, an increase of 6.1%. Passenger train mileage was 706,970, an increase of .1%. Passenger revenue per train mile was $1.360, an increase of 7.0%; including mail and express it was $1.586, an increase of 8.4%. Passenger service train revenue per train mile was $1.653, an increase of 8%.

There were 2,694 tons of new 100-lb. rails, equal to 17.14 track miles, and 836 tons of new 90-lb. rails, equal to 5.91 track miles, used in the renewal of existing main tracks.

The average amount expended for repairs per locomotive was $3,749.56; per passenger train car $836.68; per freight train car $88.41.

By proclamation the President of the United States, through the Secretary of War, took possession and assumed control of railroads at 12 o'clock noon on December 28, 1917, and appointed a Director General of Railroads by and through whom the possession, control, operation and utilization would be exercised. The proclamation also provided that the right to receive just and adequate compensation for such use, control and operation should not be impaired, and recommended an annual guaranteed compensation to each railroad company based upon its average net operating income for the three-year period ended June 30, 1917. The President addressed Congress on January 4, 1918, and Congress has passed an act providing for Governmental operation for the period of the war and twenty-one months after the declaration of peace. This act was signed by the President on March 21, 1918, and negotiations thereunder with Governmental officials will soon be entered into by this Company.

Appreciative acknowledgment is hereby made of efficient services during the year by officers and employees.

By order of the Board of Directors.

GEO. W. STEVENS,
President.

FRANK TRUMBULL,
Chairman.

GENERAL BALANCE SHEET, DECEMBER 31, 1917.

ASSETS.

TABLE 3.

Property Investment.			
Cost of Road	$29,889,016.77		
Cost of Equipment	15,734,096.51		
		$45,623,113.28	
Securities of Proprietary, Affiliated and Controlled Companies—Pledged.			
Stocks	$108,088.66		
Bonds	300,000.00		
		408,088.66	
Securities of Proprietary, Affiliated and Controlled Companies—Unpledged.			
Bonds	$150,000.00		
Miscellaneous	37,752.00		
		187,752.00	
Other Investments.			
Miscellaneous Investments—Securities—Pledged		200,000.00	
			$46,418,953.94
Working Assets.			
Cash	$1,410,905.64		
Loans and Bills Receivable	62,315.36		
Traffic Balances	129,427.97		
Agents and Conductors	258,018.07		
Miscellaneous Accounts Receivable	420,505.51		
Other Working Assets	135,353.02		
		$2,416,525.57	
Materials and Supplies		1,482,276.28	
Securities in Treasury—Unpledged.			
Stocks	$501.00		
Bonds	1,303,750.00		
		1,304,251.00	
Deferred Assets.			
Advances to Proprietary, Affiliated and Controlled Companies	$56,278.30		
Advances, Working Funds	3,011.15		
Insurance paid in advance	8,978.15		
Cash in Sinking Funds	650.74		
Special Deposit with Trustee—Mortgage Fund	410,914.84		
Cash and Securities in Insurance Reserve Fund	45,860.99		
Other Deferred Debit Items	136,034.73		
		661,728.90	
			5,864,781.75
Total			$52,283,735.69

LIABILITIES.

Capital Stock			$11,000,000.00
Funded Debt.			
First Consolidated Mortgage 4½% Bonds, 1999	$16,022,000.00		
First Mortgage C. & H. V. R. R. 4% Bonds, 1948	1,401,000.00		
First Mortgage Cols. & Tol. R. R. 4% Bonds, 1955	2,441,000.00		
6% Coupon Gold Notes, 1918	5,000,000.00		
		$24,864,000.00	
Equipment Trust Obligations		1,185,000.00	
			26,049,000.00
			$37,049,000.00
Working Liabilities:			
Traffic Balances	$621,704.00		
Audited Vouchers and Wages Unpaid	1,205,093.58		
Miscellaneous Accounts Payable	96,565.91		
Matured Interest, Dividends and Rents Unpaid	376,609.00		
Other Working Liabilities	68,553.74		
		$2,368,526.23	
Deferred Liabilities.			
Unmatured Interest, Dividends and Rents Payable	$128,068.32		
Taxes Accrued	543,213.47		
Operating Reserves	93,381.14		
Accrued Depreciation—Equipment	2,412,337.17		
Other Deferred Credit Items	268,953.62		
		3,445,953.72	
			5,814,479.95
Appropriated Surplus.			
Additions to Property through Income since June 30, 1907	$181,409.11		
Funded Debt Retired through Income and Surplus	131,331.90		
Reserve Invested in Sinking Fund	817.52		
Reserve Invested in Insurance Fund	45,860.99		
Appropriated surplus against contingent liability for freight claims	120,000.00		
		$479,419.52	
Profit and Loss—Balance		8,940,836.22	
			9,420,255.74
Total			$52,283,735.69

GENERAL BALANCE SHEET, DECEMBER 31, 1917

ASSETS

(Excluding Stocks and Bonds owned of The C. & O. Ry Co. of Indiana and of The C. & O Equipment Corporation.)

Property Investment.		
Cost of Road	$182,904,094.45	
Cost of Equipment	68,440,185.25	
		$251,344,279.70
Improvements on Leased Railway Property		4,628.78
Securities of Proprietary, Affiliated and Controlled Companies—Pledged.		
Stocks	$14,558,999.44	
Bonds	4,110,407.01	
	$18,669,406.45	
Securities—Issued or Assumed—Pledged.		
Bonds (Includes First Lien and Improvement Mortgage 5% Bonds $45,920,000.00. See Contra.)	45,920,001.00	
	$64,589,407.45	
Miscellaneous Investments.		
Physical Property	378,900.23	
Special Funds, and Funded Debt Issued and Reserved.		
First Lien and Improvement Mortgage Bonds—Drawn for Additions and Betterments	1,345,000.00	
R. & S. W. Ry. Co., First Mortgage Bonds—Reserved for Construction	40,000.00	
Potts Creek Branch—Cash	47,081.47	
Special Deposits account of Construction and Equipment (Includes Cash Balance Proceeds K. & M. Ry. Co. Stock Sale.)	1,807,696.98	
	$3,239,778.45	
		68,208,086.13
		$319,556,994.61
Working Assets.		
Cash in Treasury	$1,037,375.99	
Cash in Transit	1,222,490.09	
	$2,259,866.08	
Cash deposits to pay Interest and Dividends	1,238,394.18	
Cash deposits to pay Matured Bonds and Scrip	13,234.17	
Cash deposit to pay C. & O Grain Elevator Insurance Claims	1,021.77	
Loans and Bills Receivable	617,965.48	
Traffic Balances	1,000,632.13	
Agents and Conductors	2,573,543.42	
Miscellaneous Accounts Receivable	2,305,860.93	
Other Working Assets	165,156.57	
	$10,175,674.73	
Materials and Supplies	6,131,266.54	
Securities in Treasury—Unpledged.		
Stocks	6,234,223.45	
Bonds	1,402,815.50	
	$7,637,038.95	
Deferred Assets.		
Unmatured Interest, Dividends and Rents	98,582.08	
Advances to Proprietary, Affiliated and Controlled Companies	514,895.98	
Advances, Working Funds (Fast Freight Lines, etc)	45,053.01	
Special Deposits with Trustees, Various Mortgage Funds	100,035.82	
Special Deposit, Cash and Securities Account Liberty Loan	604,659.50	
Cash and Securities in Sinking Funds	70,757.50	
Cash and Securities in Insurance Reserve Fund	72,992.02	
Sundry Accounts	881,439.59	
	$2,388,415.50	
		26,332,395.72
Total		$345,889,390.33

LIABILITIES.

(Excluding Stocks and Bonds owned of The C. & O. Ry. Co. of Indiana and of The C. & O. Equipment Corporation.)

Capital Stock.		
Common	$62,792,600.00	
First Preferred	3,000.00	
Second Preferred	200.00	
	$62,795,800.00	
Common—The Chesapeake and Ohio Railway Co. of Indiana	1,200.00	
		$62,797,000.00
Funded Debt.		
First Mortgage, Terminal, etc, 6% Bonds, 1922	$142,000.00	
General Funding and Improvement, 5% Bonds 1929	3,698,000.00	
Convertible, 4½% Bonds 1930	31,390,000.00	
First Mortgage, R. & S. W. Railway, 4% Bonds 1936	845,000.00	
First Consolidated Mortgage, 5% Bonds, 1939	29,858,000.00	
First Mortgage, Craig Valley Branch, 5% Bonds 1940	650,000.00	
First Mortgage, Greenbrier Railway, 4% Bonds 1940	1,742,000.00	
First Mortgage, Warm Springs Branch, 5% Bonds 1941	400,000.00	
First Mortgage, Big Sandy Railway, 4% Bonds 1944	4,510,000.00	
First Mortgage, Paint Creek Branch, 4% Bonds 1945	539,000.00	
First Mortgage, Coal River Railway, 4% Bonds 1945	2,756,000.00	
Convertible 5% Secured Gold Bonds 1946	40,180,000.00	
First Mortgage, Potts Creek Branch, 4% Bonds 1946	600,000.00	
First Mortgage, Va. Air Line Railway, 5% Bonds 1952	900,000.00	
First Mortgage, R. & A. Division, 4% Bonds 1989	6,000,000.00	
Second Mortgage, R. & A. Division, 4% Bonds 1989	1,000,000.00	
General Mortgage, 4½% Bonds 1992	48,129,000.00	
	$173,339,000.00	
Equipment Trust Obligations and Contracts	10,624,327.16	
		183,963,327.16
		$246,760,327.16
First Lien and Improvement Mortgage, 5% Bonds not in hands of public (see Contra) 1930		47,265,000.00
Working Liabilities.		
Loans and Bills Payable	$95,000.00	
Traffic Balances	992,616.09	
Audited Vouchers and Pay Rolls	6,640,980.48	
Unpaid Wages	950.01	
Miscellaneous Accounts Payable	537,427.55	
Matured Interest and Dividends Unpaid	1,411,117.58	
Matured Mortgage and Secured Debt Unpaid	13,234.17	
Other Working Liabilities	156,519.20	
	$9,847,845.08	
Deferred Liabilities.		
Unmatured Interest and Rents	$2,478,785.64	
Taxes Accrued	1,196,113.71	
Employes Payments on Liberty Loan Bonds	156,155.10	
Accrued Depreciation—Equipment	7,423,273.09	
Sundry Accounts	569,606.61	
	$11,823,934.15	
		21,671,779.23
Appropriated Surplus.		
Additions to Property through Income and Surplus	$23,859,636.38	
Reserve Invested in Sinking Funds	43,442.46	
Reserve Invested in Insurance Fund	72,992.02	
	$23,976,070.86	
Profit and Loss—Balance	6,216,213.08	
		30,192,283.94
Total		$345,889,390.33

The Hocking Valley Railway Company—Nineteenth Annual Report

Columbus, Ohio, April 8, 1918.

To the Stockholders:

The Nineteenth Annual Report of the Board of Directors, for the fiscal year ended December 31, 1917, is herewith submitted.

The average mileage operated during the year was 349.6 miles, a decrease compared with the previous year of .6 miles. The mileage at the end of the year was 349.7 miles.

RESULTS FOR THE YEAR.

Operating Revenues were (Increase $2,496,014.30 or 30.44%.)		$10,696,434.22
Operating Expenses were (Increase $1,811,233.68 or 32.36%.)		7,409,122.69
Net Operating Revenue was (Increase $684,780.62 or 26.31%.)		$3,287,311.53
Taxes were (Increase $242,277.41 or 41.03%.)		832,747.51
Operating Income, Taxes deducted, was (Increase $442,503.21 or 21.99%.)		$2,454,564.02
Miscellaneous Income was (Decrease $429,905.22 or 37.49%.)		716,899.02
		$3,171,463.04
Rentals and Other Payments were (Decrease $540,094.73 or 94.68%.)		30,355.40
Income for the year available for interest was (Increase $552,692.72 or 21.35%.)		$3,141,107.64
Interest (38.43% of amount available) amounted to (Decrease $5,092.97 or 0.42%.)		1,207,195.17
Net Income for the year amounted to (Increase $557,785.69 or 40.53%.)		$1,933,912.47
Dividends paid during the year:		
One dividend of 2%	$219,990.00	
One dividend of 3½%	384,982.50	604,972.50
Remainder, devoted to improvement of physical and other assets		$1,328,939.97

RETURN ON PROPERTY.

The following table shows the amount of return to your Company, from transportation operations only, upon its investment in road and equipment at the termination of each year of the five year period ended December 31, 1917:

Year ended December 31:	Property Investment.	Total Operating Income, (including hire of equipment and other items).	Per Cent. of Return.
1917	$46,237,480.24	$3,060,174.97	6.62
1916	45,198,144.03	3,052,123.37	6.75
1915	44,802,665.64	2,041,149.36	4.56
1914	45,475,978.73	1,673,012.19	3.68
1913	42,525,047.49	2,547,540.52	5.99
Average	$44,847,863.23	$2,474,800.08	5.52

FINANCIAL.

The changes in funded debt shown by balance sheet of December 31, 1917, as compared with December 31, 1916, consisted in the payment of $498,000.00 on equipment trusts, in the retirement of $4,000,000.00 face amount two-year 5% gold notes, and in the addition of $5,000,000.00 face amount 6% gold notes maturing November 1, 1918.

An analysis of the property accounts will be found on pages 12 and 13, by reference to which it will be seen that additions and betterments were made during the year to the net amount of $1,026,741.12, of which $577,703.48 was added to cost of road, and $449,037.64 was added to cost of equipment. The net amount of $605,349.08 was also added to cost of equipment for additions, betterments and retirements of equipment transferred from other accounts to which they had been charged or credited since June 30, 1907, this transfer having been made in order to place these items in the cost of equipment account where they properly belong.

During the past nine years your Company's net addition to property accounts has been as follows:

Equipment	$4,181,582.30
Additions and Betterments	3,776,349.24
	$7,957,931.54

GENERAL REMARKS.

Increases in wages of employees during the year increased the year's cost of operation approximately $625,000.

The equipment in service December 31, 1917, consisted of:

Locomotives owned	133	Increase	8
Locomotives leased under equipment trusts	8	No change	
Total	141	Increase	8
Passenger train cars owned	71	Decrease	2
Freight train and miscellaneous cars owned	12,688	Increase	2,983
Freight train cars leased under equipment trusts	2,499	Decrease	3,041
Freight train cars under special trust	47	No change	
Total freight train and miscellaneous cars	15,234	Decrease	58

The changes during the year in accrued depreciation of equipment account were as follows:

Balance to credit of account December 31, 1916			$1,543,798.00
Amount credited during year ended December 31, 1917, by charges to operating expenses	$293,338.03		
Amount credited by transfer of property items to cost of equipment	587,346.90		
		$880,684.93	
Charges to account for:			
Accrued depreciation on equipment retired during year—82 freight and work cars	$8,206.99		
2 passenger cars and motor equipment thereof	3,589.90		
Accrued depreciation on cars changed in class during year	348.87		
		12,145.76	
			868,539.17
Balance to credit of account December 31, 1917			$2,412,337.17

The grading for 27 miles of second track north of Columbus is well under way and some track has been laid. At Parsons Yard, South Columbus, five additional 100-car tracks are being constructed, a fireproof yard office is practically completed, and the 15-stall engine house with other shop facilities is now in use. The separation of grades at Smoky Row Road and the main tracks at South Columbus, ordered by the County Commissioners, is well under way. The capacity of the Walbridge yard has been increased by the construction of three 100-car arriving tracks. A 300-ton capacity coaling station at Nelsonville is practically completed.

The revenue coal and coke tonnage was 10,674,854 tons, an increase of 14.9%; other revenue freight tonnage was 4,191,981 tons, an increase of 11.2%. Total revenue tonnage was 14,866,835 tons, an increase of 13.8%. Freight revenue was $8,974,872.91, an increase of 34.3%. Freight train mileage was 1,474,893 miles, an increase of 8%. Revenue ton miles were 1,966,272,286, an increase of 19.6%. Ton mile revenue was 4.56 mills, an increase of 12.3%. Revenue per freight train mile was $6.085, an increase of 24.4%. Revenue tonnage per train mile was 1,333 tons, an increase of 10.7%; including Company's freight, the tonnage per train mile was 1,368 tons, an increase of 10.6%. Tonnage per locomotive, including Company's freight, was 1,123 tons, an increase of 7.5%. Revenue tonnage per loaded car was 43.8 tons, an increase of 9.2%. Tons of revenue freight carried one mile per mile of road were 5,624,349, an increase of 19.8%.

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By order of the Board of Directors.

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President.

FRANK TRUMBULL,
Chairman.

GENERAL BALANCE SHEET, DECEMBER 31, 1917.

ASSETS.

TABLE 3.

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			9,420,255.74	
Total			$52,283,735.69	

[Adv.]

Railway Officers

Executive, Financial, Legal and Accounting

J. A. McCort has been appointed assistant auditor of the Wheeling & Lake Erie, with office at Cleveland, Ohio.

F. W. Pullen has been appointed general agent of all departments of the Nacozari Railroad Co., with office at Chicago.

Charles Donnelly, assistant general counsel of the Northern Pacific, with headquarters at St. Paul, Minn., has been appointed general solicitor.

Henry L. Adams, assistant attorney for Iowa of the Chicago & North Western, has been promoted to attorney for Iowa, with headquarters at Des Moines, Iowa, succeeding **J. C. Davis,** promoted to general solicitor.

L. B. Shepherd, southwestern passenger agent of the Chicago & Alton, at Dallas, Tex., has been transferred to the controller's office at Chicago and the position of southwestern passenger agent, at Dallas, Tex., has been abolished.

A. A. McLoughlin, whose appointment as assistant general solicitor for the Chicago & North Western Company, with headquarters at Omaha, Neb., was announced in these columns on April 26, was born at Webster City, Iowa, on May 13, 1868. He was educated in Iowa State College at Ames, Iowa, and in the University of Michigan, at Ann Arbor, Mich., graduating in the law department in 1892. After graduation Mr. McLaughlin began the general practice of law at Des Moines, Ia., and on March 1, 1903, was appointed assistant attorney for the Chicago & North Western for the State of Iowa, which position he held until his appointment on October 1, 1912, as attorney for the State of Nebraska for the same company. He continued in this position until his recent promotion to assistant general solicitor as mentioned above.

A. A. McLoughlin

Operating

Peter Groome has been appointed safety agent of the Union Pacific, with headquarters at Omaha, Neb., vice **J. M. Guild,** resigned to enter military service.

L. G. Waldrop, general agent of the Louisville & Nashville, with office at Nashville, Tenn., has been appointed assistant superintendent of the Nashville Terminals.

H. N. Atwood, general agent of the freight department of the Missouri Pacific at St. Louis, Mo., has been appointed inspector of freight transportation, and **J. G. Hollenbeck,** general passenger agent at St. Louis, has been appointed inspector of passenger transportation; both with headquarters at St. Louis.

J. W. Deneen, superintendent of the Monongah division of the Baltimore & Ohio, with office at Grafton, W. Va., has been appointed superintendent of the Cumberland division, with office at Cumberland, Md., succeeding **George D. Brooke,** who has been assigned to special duty, with headquarters at Baltimore.

J. W. Farrell, trainmaster of the Grand Trunk at Richmond, Que., has been appointed trainmaster of the First district, with headquarters at Island Pond, Vt., and **N. P. North** has been appointed trainmaster of the Second and Third districts, with headquarters at Richmond. The position of assistant trainmaster, First and Second districts, has been abolished.

Charles B. Rodgers has been appointed general manager of the Davenport, Rock Island & North Western, with headquarters at Davenport, Iowa, succeeding O. B. Grant, effective May 1. Mr. Rodgers was born at West Point, Iowa, on October 4, 1861. He entered railway service with the Chicago, Burlington & Quincy in 1880 and has been with that road continuously until his recent appointment as mentioned above.

E. K. Fleming, general agent in the freight department of the Chicago, Burlington & Quincy, at Chicago, has been appointed on the vice-president's staff to look after over, short and damage matters, with headquarters at Chicago, succeeding **C. B. Rodgers,** resigned to accept service with another company. **H. R. Freed,** general agent at Clinton, Iowa, has been appointed on the vice-president's staff to look after station matters, with headquarters at Chicago, effective May 1.

C. B. Floyd has been appointed assistant to the general safety agent of the New York Central, with office at New York, succeeding **R. S. Jarnagin** who has gone to Washington to take a position in the Safety Section, Department of Transportation. Mr. Floyd has been for several years past a division safety agent, located in the Chicago territory of the New York Central Lines. He will be succeeded in that territory by J. W. Johnston, who for past two years has been division safety agent on the Big Four at Indianapolis, Ind.

H. J. Humphrey, superintendent of the Canadian Pacific at Brownville Junction, Me., has been appointed superintendent of the Laurentian division, with office at Montreal, Que., in place of **W. Tansley,** transferred; **J. H. Boyle,** superintendent at Farnham, Que., has been appointed superintendent of the Brownville division, succeeding Mr. Humphrey; **J. B. Blair,** assistant superintendent of the Montreal Terminal division, has been appointed superintendent of the Farnham division, with office at Farnham, in place of Mr. Boyle; **W. E. McGill,** assistant superintendent at Sudbury, Ont., has been appointed assistant superintendent of the Montreal Terminals division, in place of Mr. Blair, and **C. E. Towle** has been appointed assistant superintendent, with headquarters at Sudbury, vice Mr. McGill.

W. B. Darrow, superintendent of transportation of the first division of the Atlantic Coast Line, at Rocky Mount, N. C., has been appointed superintendent of transportation, with authority over the system, with office at Wilmington, N. C.; **J. Lowell White,** district superintendent at Norfolk, Va., has been appointed superintendent of transportation of the First division, with office at Rocky Mount; **C. M. Cobb,** trainmaster at Tarboro, has been appointed superintendent of the Norfolk district, with office at Norfolk; **R. B. Hare,** assistant superintendent at Florence, S. C., has been appointed superintendent of the Columbia district, with office at Florence, vice **G. G. Lynch,** retired, and the position of assistant superintendent of the Columbia district has been abolished; **W. H. Newell, Jr.,** has been appointed trainmaster of the Norfolk district, with office at Tarboro.

Frank W. Taylor, whose appointment as general manager of the Missouri, Kansas & Texas, with headquarters at Parsons, Kas., was announced in these columns on April 12, was born at Water Valley, Miss., on October 24, 1875. Mr. Taylor began his railroad career as a machinists' apprentice with the Illinois Central at Water Valley, in June, 1892. After serving four years in this capacity he was transferred to the Burnside shops, Chicago, where he remained a short time. He then returned to Water Valley, Miss., and worked as a journeyman machinist until October, 1901, when he was appointed night roundhouse foreman. On October 1, 1902, Mr. Taylor was transferred to Jackson, Miss., as general foreman at that point, and in the following year he was transferred to Louisville, Ky., in the same capacity. In October, 1908, he was promoted to master mechanic, at Mattoon, Ill., and on April 1, 1912, was transferred to Waterloo, Iowa, as master mechanic of the Minnesota and Iowa divisions. On January 1, 1915, Mr. Taylor was appointed superintendent of motive power of the International & Great Northern, with headquarters at Palestine, Tex. On January 1, he became

superintendent of motive power of the Missouri, Kansas & Texas, with headquarters at Denison, Tex. On March 1, of this year he was promoted to general manager on the Missouri, Kansas & Texas, as mentioned above.

J. E. Fairhead, whose appointment as general superintendent of the Pittsburgh & West Virginia, with headquarters at Pittsburgh, Pa., has already been announced in these columns, was born on August 4, 1879, at Urbana, Ill., and was educated in the common and high schools at Covington, Ky. He began railway work in November, 1901, as clerk to trainmaster on the Chesapeake & Ohio, and later served consecutively as stenographer in the general manager's office of the Cleveland, Cincinnati, Chicago & St. Louis; secretary to president of the Wabash-Pittsburgh Terminal Railway, at Pittsburgh, Pa.; chief clerk to superintendent of the same road; secretary to general manager of the Cincinnati, Hamilton & Dayton, with office at Cincinnati, Ohio; and secretary to president of the Kansas City Southern. From February, 1907, to August, 1912, he served as chief clerk to general manager and vice-president and general manager, and then was appointed superintendent of car service of the same road, remaining in that position until April 1, 1918, when he became general superintendent of the Pittsburgh & West Virginia.

Traffic

William T. Price, commercial agent of the Union Pacific System, at Pueblo, Colo., has been appointed traffic manager and property agent of the Denver (Colo.) Tramway and the Denver Interurban.

Charles H. Ryan, Jr., commercial agent of the Louisville & Nashville, at Indianapolis, Ind., has been appointed general agent, with office at Nashville, Tenn., to succeed L. G. Waldrop, transferred.

A. C. Odenbaugh, general agent in the passenger department of the Northern Pacific, at Chicago, has resigned, to become connected with the bond department of the Chicago Savings Bank in that city.

Henry Adema, lake grain agent of the Delaware, Lackawanna & Western, with office at Buffalo, N. Y., has resigned to become secretary of the White Pine Association of the Tonawandas, with office at Tonawanda, N. Y.

John B. Mordecai has been appointed traffic manager of the Richmond, Fredericksburg & Potomac and the Washington Southern, with office at Richmond, Va., to succeed the late **Colonel Warren P. Taylor.**

B. H. DaCosta, commercial agent at New York, and **J. W. Jones,** commercial agent at Cincinnati, Ohio, of the Central of Georgia, have been assigned to service on the line and the agencies at both places have been closed.

H. P. Cornick, assistant general freight agent of the Louisville & Nashville at Evansville, Ind., has been appointed general freight agent, with headquarters at Evansville, vice **Lee Howell,** deceased, and his former position has been abolished. **C. H. Ryan, Jr.,** has been appointed general agent, with headquarters at Nashville, Tenn., vice **L. G. Waldrop,** promoted to other duties in the transportation department.

Engineering and Rolling Stock

Tazwell Ellett, Jr., assistant division engineer of the Baltimore & Ohio, with office at Cumberland, Md., has resigned.

E. S. FitzSimmons, mechanical superintendent of the Erie, with office at New York, has resigned to go into other business.

T. R. Stewart, master mechanic of the Baltimore & Ohio, at Connellsville, Pa., has been transferred as master mechanic to Cumberland, Md.

H. P. Creighton has been appointed bridge and building master of the Canadian Pacific, with headquarters at Schreiber, Ont., vice **E. T. Draper,** transferred.

The authority of **E. C. Sasser,** superintendent of motive power of the Southern Railway, with office at Charlotte, N. C., has been extended to cover the entire lines east; **W. S. Murrian,** having resigned to engage in other business, the position of superintendent of motive power of the middle district has been abolished.

H. L. Archbold has been appointed division engineer of the Tucson division of the Southern Pacific, with office at Tucson, Ariz., succeeding **J. D. Mathews,** resigned.

F. C. Haney, signal foreman of the Chicago, Rock Island & Pacific, on the Chicago terminal territory, has been appointed signal supervisor, with headquarters at Ft. Worth, Tex., succeeding **J. G. Stoll** transferred to the Chicago District and assigned to other duties, effective May 1.

H. J. Hanlin has been appointed sanitary engineer of the St. Louis Southwestern lines, with headquarters at Texarkana, Ark., succeeding **H. W. Van Hovenberg** who has resigned to become sanitary engineer in the United States Public Health Service. This appointment was effective May 1.

H. C. Phillips, general secretary of the Railroad Presidents' Conference Committee on Federal Valuation of Railroads, with headquarters at Philadelphia, Pa., has resigned to become chairman of the Western Group of the Engineering Committee at Chicago. The offices of the Western Group were moved on May 1 to 110 South Dearborn Street, Chicago, where facilities have been provided for meetings of sub-committees which are making special studies of cost data and unit prices.

W. H. Winterrowd, whose appointment as chief mechanical engineer of the Canadian Pacific, with headquarters at Montreal, Que., has already been announced in these columns, was born on April 2, 1884, at Hope, Ind. He attended the public schools at Shelbyville, Ind., and graduated in 1907 from Purdue University. In 1905 he was employed for a short time as a blacksmith's helper on the Lake Erie & Western, at Lima, Ohio, and in 1906 he was a car and air brake repairman on the Pennsylvania Lines West, at Dennison, Ohio. After graduation he became a special apprentice on the Lake Shore & Michigan Southern, and in 1908 he went with the Lake Erie, Alliance & Wheeling as enginehouse foreman at Alliance, Ohio. In 1909 he became night enginehouse foreman of the Lake Shore & Michigan Southern at Youngstown, Ohio, and in 1910 was made roundhouse foreman at Cleveland. Later in the same year he was promoted to assistant to the mechanical engineer of the Lake Shore. Since September, 1912, he has been with the Canadian Pacific, at first as mechanical engineer, and in May, 1915, was appointed assistant chief mechanical engineer.

W. H. Winterrowd

H. O. Whitney, roadmaster on the Denver & Rio Grande, with headquarters at Glenwood Springs, Colo., has been promoted to general roadmaster of the Utah lines, with headquarters at Salt Lake City, Utah, effective April 29. **R. C. Violett,** roadmaster on the St. Louis South Western at Mt. Pleasant, Tex., has been appointed general roadmaster of the Colorado Lines of the Denver & Rio Grande, with headquarters at Denver. **B. T. Johnson** has been made supervisor of maintenance equipment.

J. A. McFerran, master mechanic of the Louisville & Nashville, at Covington, Ky., has been appointed master mechanic of the Mobile & Montgomery division and branches, with office at the Montgomery (Ala.) shop; the position of **T. A. Nelson,** assistant master mechanic at Montgomery, has been abolished, and **J. D. Maxwell,** master mechanic at Mobile, has been relieved of supervision over mechanical matters on the Mobile & Montgomery division and branches; **C. W. Matthews** has been appointed master mechanic of Cincinnati terminals and Kentucky division, with office at Central Covington (Ky.) shop, vice **J. A. McFerran; B. E. Dupont** has been appointed master

mechanic of the Howell (Ind.) shops, Henderson and St. Louis divisions and St. Louis terminals, vice **Henry Hardie,** deceased; **F. W. Oakley** has been appointed master mechanic of the Eastern Kentucky division, with office at Ravenna (Ky.) shops, vice **Harry S. Hills,** deceased, and **T. F. Ryan** has been appointed assistant master mechanic of the Cincinnati terminals and Kentucky division, with office at Central Covington shop.

Railway Officers in Government Service

F. P. Pfahler, master mechanic of the Baltimore & Ohio at Cumberland, Md., has been appointed mechanical engineer of the Locomotive Section, United States Railroad Administration.

A. K. Morris, freight coal agent at the Erie, New York, has been granted a furlough to serve as director of tidewater coal traffic on the Anthracite Committee of the Fuel Administration, with headquarters at New York.

W. S. Basinger, general passenger agent of the Union Pacific, and **C. A. Fox,** secretary of the Central Passenger Association, have been appointed assistants to Gerrit Fort in the passenger department of the division of traffic at Washington.

Paul A. Bevan, motive power inspector, Central System, Pennsylvania Railroad, Western Lines, has been granted a furlough to enter the Ordnance Department of the United States Army, as engineer of tests. Mr. Bevan is located at the United States Cartridge Company, Lowell, Mass.

Charles M. Anderson, superintendent of safety of the Nashville, Chattanooga & St. Louis, has been appointed supervisor of safety of the southern railroads with headquarters at Atlanta, Ga. Mr. Anderson is the first of three regional safety officers to be appointed to assist H. W. Belnap, manager of the Safety Section of the United States Administration at Washington. Mr. Anderson was born at Owingsville, Ky., in February, 1887. He began his railroad career in 1906 as a clerk in the office of the superintendent of the Louisville & Nashville at Middlesboro, Ky. He was advanced to chief clerk in that office and in 1912 he was appointed chief clerk in the office of the superintendent of construction. In 1914 he entered the service of the Nashville, Chattanooga & St. Louis, and in 1916 was placed in charge of the organization of safety work on the system with the title of superintendent of safety. Mr. Anderson is also secretary of the steam railroad section of the National Safety Council. He will open his office in Atlanta on June 1.

C. M. Anderson

Obituary

Charles D. Porter, master mechanic of the Pennsylvania Railroad, at Pittsburgh, Pa., died in that city on May 2, at the age of thirty-five.

S. L. Bean, mechanical superintendent of the Atchison, Topeka & Santa Fe, coast lines, who died at Los Angeles, Cal., on March 24, as announced in the *Railway Age* on April 12, was born in Franklin, N. Y., on March 25, 1851. He learned the machinist's trade in the Manchester Locomotive Works and entered railway service with the Wisconsin Central in 1873. On June 10, 1903, he was appointed division master mechanic for the Santa Fe at Albuquerque, N. M. and on April 20, 1914, he was promoted to mechanical superintendent, with headquarters at Los Angeles, Cal., which position he held until his death. Mr. Bean was 67 years of age.

William H. Barnes, director of the Pennsylvania Railroad and formerly president of the Allegheny Valley, died on May 5, at his home in Philadelphia, Pa. He was born in July, 1829, in Philadelphia and entered the service of the Pennsylvania Railroad in March, 1848, with an engineering corps at Greensburg, Pa. Mr. Barnes was one of the charter members of the Pennsylvania company, and in 1871 served as treasurer of that company. In 1884 he became receiver of the Allegheny Valley and later, when it was reorganized, he became president of that road. Since December, 1889, he was a director of the Pennsylvania Railroad Company and was also director of a number of other corporations affiliated with the Pennsylvania Railroad system.

Robert Morrison Olyphant, chairman of the executive committee of the Delaware & Hudson Company, died on May 2, 1918, at his home in New York City. Mr. Olyphant was born on September 9, 1824, at New York, and graduated from Columbia College in the class of 1842. On September 15, 1876, he was appointed assistant president of the Delaware & Hudson Canal Company, and had served continuously in the service of that company and its successor, the Delaware & Hudson Company, until his death. From May, 1882, to August, 1884, he was vice-president and then served as acting president until October of the same year. He was elected president in October, 1884, and since May 14, 1903, has been chairman of the executive committee.

R. M. Olyphant

In Military Service

Major Charles G. Baird, commanding officer of the 413th Telegraph Battalion Signal Corps now in service in France, died in France on April 28. Major Baird was born on February 10, 1880. He entered the service of the Pennsylvania Railroad on March 9, 1893, and became interested in telegraphy. He left the Pennsylvania Co.'s service on September 25, 1901, to enlist in the U. S. A. Signal Corps, and served four years in the Philippines. On March 23, 1905, he returned to the service of the Pennsylvania Railroad, and in 1910 he had charge of the construction and installation of all the signal, telegraph and telephone lines in the Pennsylvania station, New York. He was division operator on the New York division at the time he was furloughed for service in France. Major Baird was a veteran of the Spanish War, and it was largely through his efforts that the 413th Telegraph Battalion was organized. The unit consists of telegraph operators and electricians, nearly all of whom were Pennsylvania Railroad employees. His executive abilities were promptly recognized, for even though he had been in France but a short time, he was recently appointed to the position of superintendent of telephone and telegraph traffic of the American Expeditionary Forces.

Major C. G. Baird